

The GCMP Assessment Format and Supplemental Information Form may be reproduced and submitted along with other required information to the BSP.

## GUAM COASTAL MANAGEMENT PROGRAM ASSESSMENT FORMAT

DATE OF APPLICATION: August 30, 2016  
NAME OF APPLICANT: Glenn Leon Guerrero- Director, Guam Department of Public Works  
ADDRESS: 542 North Marine Corps Drive, Tamming, Guam 96913  
TELEPHONE NO. 671-646-3131 Fax No. 671-649-6178 Cell No: \_\_\_\_\_  
E-MAIL ADDRESS: Glenn.Leonguerrero@dpw.guam.gov

TITLE OF PROPOSED PROJECT:  
Ajayan Bridge Replacement Project

### COMPLETE FOLLOWING PAGES

FOR BUREAU OF STATISTICS AND PLANS ONLY:

DATE APPLICATION RECEIVED: \_\_\_\_\_  
OCRM NOTIFIED: \_\_\_\_\_ LIC. AGENCY NOTIFIED: \_\_\_\_\_  
APPLICANT NOTIFIED: \_\_\_\_\_ PUBLIC NOTICE GIVEN: \_\_\_\_\_  
OTHER AGENCY REVIEW  
REQUESTED: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### DETERMINATION:

CONSISTENT    NON-CONSISTENT    FURTHER INFORMATION REQUESTED

OCRM NOTIFIED: \_\_\_\_\_ LIC. AGENCY NOTIFIED: \_\_\_\_\_  
APPLICANT NOTIFIED: \_\_\_\_\_  
ACTION LOG:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

DATE REVIEW COMPLETED: \_\_\_\_\_

## **DEVELOPMENT POLICIES (DP):**

### DP 1. Shore Area Development

**Intent:** To ensure environmental and aesthetic compatibility of shore area land uses.

**Policy:** Only those uses shall be located within the Seashore Reserve which:

- enhance, are compatible with or do not generally detract from the surrounding coastal area's aesthetic and environmental quality and beach accessibility; or
- can demonstrate dependence on such a location and the lack of feasible alternative sites.

**Discussion:**

No new shore area development is part of this project. The existing single-span cast-in-place concrete box girder bridge was constructed in 1968 and will be replaced. The proposed improvements include two 12-foot-wide lanes with 8-foot-wide paved shoulders. Roadway alignment and grade will match the existing at the points of tie-in. The project will include demolishing and removing the existing bridge structure and existing pile caps. The existing piles below the waterline will be cut and capped at the mudline but left in-place. This will allow for minimal disturbance of the aquatic ecosystem. Roadway work within the project limits will include removing the existing pavement, replacing full-depth pavement, and replacing the guardrails.

### DP 2. Urban Development

**Intent:** To cluster high impact uses such that coherent community design, function, infrastructure support and environmental compatibility are assured.

**Policy:** Commercial, multi-family, industrial and resort-hotel zone uses and uses requiring high levels of support facilities shall be concentrated within appropriate zone as outlined on the Guam Zoning Code.

**Discussion:**

Not applicable. Commercial, multi-family, industrial and resort-hotel zone uses and uses requiring high levels of support facilities are not part of this bridge replacement project.

### DP 3. Rural Development

Intent: To provide a development pattern compatible with environmental and infrastructure support suitability and which can permit traditional lifestyle patterns to continue to the extent practicable.

Policy: Rural districts shall be designated in which only low density residential and agricultural uses will be acceptable. Minimum lot size for these uses should be one-half acre until adequate infrastructure including functional sewerage is provided.

Discussion:

Not applicable. Rural development is not part of this bridge replacement project.

### DP 4. Major Facility Siting

Intent: To include the national interest in analyzing the siting proposals for major utilities, fuel and transport facilities.

Policy: In evaluating the consistency of proposed major facilities with the goals, policies, and standards of the Comprehensive Development and Coastal Management Plans, Guam shall recognize the national interest in the siting of such facilities, including those associated with electric power production and transmission, petroleum refining and transmission, port and air installations, solid waste disposal, sewage treatment, and major reservoir sites.

Discussion:

Not applicable. This project does not involve the siting of facilities for electric power production and transmission, port and air installations, solid waste disposal, sewage treatment, or major reservoir sites.

#### DP 5. Hazardous Areas

Intent: Development in hazardous areas will be governed by the degree of hazard and the land use regulations.

Policy: Identified hazardous lands, including flood plains, erosion-prone areas, air installations' crash and sound zones and major fault lines shall be developed only to the extent that such development does not pose unreasonable risks to the health, safety or welfare of the people of Guam, and complies with the land use regulations.

#### Discussion:

According to the Flood Insurance Rate Map (FIRM), the project area is within Zone AE or the 100-year or 1% annual chance of flood. Although this is a Special Flood Hazard Area, the project is not a new development but is instead replacement of an existing bridge. The replacement bridge will not create new or additional development that would pose a risk to the health, safety, or welfare to the people of Guam. The bridge will be designed and constructed in accordance with Public Law 30-159 provisions of the 2009 International Building Code (IBC), in which it is capable of withstanding strong currents and seismic activity.

#### DP 6. Housing

Intent: To promote efficient community design placed where the resources can support it.

Policy: The government shall encourage efficient design of residential areas, restrict such development in areas highly susceptible to natural and manmade hazards, and recognize the limitations of the island's resources to support historical patterns of residential development.

#### Discussion:

Not applicable. The project scope is limited to bridge replacement and does not include residential development.

### DP 7. Transportation

**Intent:** To provide transportation systems while protecting potentially impacted resources.

**Policy:** Guam shall develop an efficient and safe transportation system, while limiting adverse environmental impacts on primary aquifers, beaches, estuaries, coral reefs and other coastal resources.

**Discussion:**

This bridge replacement project will replace the existing Ajayan Bridge in order to ensure safe and efficient two-lane access between Merizo and Inarajan. To accommodate traffic during construction, the bridge will be demolished in two phases (i.e., demolishing one side [longitudinally] of the bridge at a time). This will allow two-way traffic (one lane, controlled by traffic lights) to use the bridge during demolition and construction. Construction of the new bridge will also be performed in two phases so that two-way signal-controlled traffic can be maintained in one lane during construction. Direct impacts to significant coastal resources, such as living coral, seagrass beds, and Nypa palm community, will be avoided. No in-water work will take place during coral spawning. Marine species access through the river corridor will be maintained. Construction BMPs, such as catchment platforms, protective netting, silt screen fences, and turbidity curtains will be implemented to minimize potential impact to water quality and aquatic resources. See Appendix H – BMPs and Minimization Measures).

### DP 8. Erosion and Siltation

**Intent:** To control development where erosion and siltation damage is likely to occur.

**Policy:** Development shall be limited in areas of 15% or greater slope by requiring strict compliance with erosion, sedimentation, and land use regulations, as well as other related land use guidelines for such areas.

**Discussion:**

Construction best management practices (BMPs) will be implemented to minimize potential impacts to surface waters, as described above in DP 7. An Environmental Protection Plan, Erosion Control Plan, Storm Water Pollution Prevention Plan, and project-specific plans will be prepared, approved by appropriate regulatory agencies, and implemented. See Appendix H – BMPs and Minimization Measures for further details.

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## **RESOURCES POLICIES (RP):**

### RP 1. Air Quality

**Intent:** To control activities to insure good air quality.

**Policy:** All activities and uses shall comply with all local air pollution regulations and all appropriate Federal air quality standards in order to ensure the maintenance of Guam's relatively high air quality.

#### **Discussion:**

The project will not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions impacts. As such, FHWA has determined that this project will generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special Mobile Source Air Toxics (MSAT) concerns. Consequently, this effort is exempt from analysis for MSATs. Moreover, EPA regulations for vehicle engines and fuels will cause overall MSATs to decline significantly over the next 20 years. Even after accounting for a 64 percent increase in vehicle miles traveled (VMT), FHWA predicts MSATs will decline in the range of 57 percent to 87 percent, from 2000 to 2020, based on regulations now in effect, even with a projected 64 percent increase in VMT. This will both reduce the background level of MSATs, as well as the possibility of even minor MSAT emissions from this project.

### RP 2. Water Quality

**Intent:** To control activities that may degrade Guam's drinking, recreational, and ecologically sensitive waters.

**Policy:** Safe drinking water shall be assured and aquatic recreation sites shall be protected through the regulation of uses and discharges that pose a pollution threat to Guam's waters, particularly in estuaries, reef and aquifer areas.

#### **Discussion:**

This project will not degrade Guam's drinking, recreational, or ecologically sensitive waters. The project site does not overlie Guam's sole source aquifer or any portion of its recharge area, which provides Guam's drinking water. BMPs and storm water and erosion control measures, as described in detail in Appendix H, will be utilized to prevent degradation to Guam's recreational and ecologically sensitive waters. In addition, a National Pollutant Discharge Elimination System (NPDES) permit will be obtained from the Guam EPA. An Army Corps of Engineers, Clean Water Act Section 404, Permit and Rivers and Harbors Act, Section 10 Permit will also be required.

### RP 3. Fragile Areas

Intent: To protect significant cultural areas, and natural marine and terrestrial wildlife and plant habitats.

Policy: Development in the following types of fragile areas including Guam's Marine Protected Areas (MPA) shall be regulated to protect their unique character.

- historical and archeological sites
- wildlife habitats
- pristine marine and terrestrial communities
- limestone forests
- mangrove stands and other wetlands
- coral reefs

#### Discussion:

\* Ajayan Bridge is located near the Achang Reef Flat Marine Protected Area (MPA), in which taking, killing, damaging, or wounding marine organisms is prohibited. The FHWA and DPW have coordinated with USFWS, NMFS, and Guam DAWR to develop measures to avoid, mitigate, and/or minimize potential impacts to marine species. See Appendix G – Agency Consultation Correspondence, Appendix J – Marine Protected Species of the Mariana Islands, and Appendix K – Flora and Fauna Surveys for Ajayan Bridge Replacement Project.

\* Ajayan Bay Archaeological Site (Site no. 66-05-0111) is in the vicinity of the project. An Archaeological Survey and Subsurface testing was conducted to identify the project's potential impact. A determination of "no adverse effect" will be submitted to the Guam State Historic Preservation Officer pursuant to the National Historic Preservation Act. See Appendix G – Agency Consultation Correspondence.

### RP 4. Living Marine Resources

Intent: To protect marine resources in Guam's waters.

Policy: All living resources within the waters of Guam, particularly fish, shall be protected from over harvesting and, in the case of corals, sea turtles and marine mammals, from any taking whatsoever.

#### Discussion:

DPW and FHWA consulted with NMFS to minimize potential impacts to Essential Fish Habitat (EFH) (see Appendix G – Agency Consultation Correspondence). The EFH conservation recommendation provided by NMFS will be followed. This will include strict adherence and inspection of BMPs, real-time turbidity monitoring and adaptive management to address impacts to water quality, immediate replacement of vegetation following construction, cleaning of equipment to avoid spread of invasive species, and development of a compensatory mitigation plan to offset loss of EFH should BMPs fail to protect EFH. Direct destruction and impacts to living coral, seagrass beds, and Nypa palm community will be avoided. Per Guam DAWR, coral spawning takes place around the last quarter moon of July and August. No in-water work will take place within 3 days of this moon phase to avoid impacting coral spawning. Marine species access through the river corridor will be maintained. Measures to avoid and minimize potential impacts to marine mammals and sea turtles will be implemented. Construction BMPs will be implemented to minimize potential impact to water quality, clarity, and aquatic resources.

## RP 5. Visual Quality

Intent: To protect the quality of Guam's natural scenic beauty

Policy: Preservation and enhancement of, and respect for the island's scenic resources shall be encouraged through increased enforcement of and compliance with sign, litter, zoning, subdivision, building and related land-use laws. Visually objectionable uses shall be located to the maximum extent practicable so as not to degrade significant views from scenic overlooks, highways and trails.

### Discussion:

No impact is anticipated to the visual quality of the project area or surrounding areas. The existing bridge will be replaced with a new 40-foot-wide by 105-foot-long bridge. The proposed improvements include two 12-foot-wide lanes with 8-foot-wide paved shoulders. Roadway alignment and grade will match the existing at the points of tie-in.

## RP6. Recreation Areas

Intent: To encourage environmentally compatible recreational development.

Policy: The Government of Guam shall encourage development of varied types of recreational facilities located and maintained so as to be compatible with the surrounding environment and land uses, adequately serve community centers and urban areas and protect beaches and such passive recreational areas as wildlife, marine conservation and marine protected areas, scenic overlooks, parks, and historical sites.

Developments, activities and uses shall comply with the Guam Recreational Water Use Management Plan (RWUMP).

### Discussion:

The bridge replacement project will not impact recreational areas. As discussed above in RP 3, the Ajayan Bridge is located in the Achang Reef Flat MPA. Given that the existing bridge provides a passive scenic view of the MPA through the natural break in the coastal vegetation, the replacement bridge would continue to support the same passive appreciation of the marine protected area.

### RP 7. Public Access

Intent: To ensure the right of public access.

Policy: The public's right of unrestricted access shall be ensured to all non-federally owned beach areas and all Guam recreation areas, parks, scenic overlooks, designated conservation areas and their public lands. Agreements shall be encouraged with the owners of private and federal property for the provision of releasable access to and use of resources of public nature located on such land.

#### Discussion:

Public access will be maintained throughout the project. To accommodate traffic during construction, the bridge will be demolished in two phases (i.e., demolishing one side [longitudinally] of the bridge at a time). This will allow two-way traffic (one lane, controlled by traffic lights) to use the bridge during demolition and construction. Construction of the new bridge will also be performed in two phases so that two-way signal-controlled traffic can be maintained in one lane during construction.

### RP 8. Agricultural Lands

Intent: To stop urban types of development on agricultural land.

Policy: Critical agricultural land shall be preserved and maintained for agricultural use.

#### Discussion:

Not applicable. The bridge replacement project will not remove active critical agricultural land from production.

**FEDERAL CONSISTENCY  
SUPPLEMENTAL INFORMATION FORM**

Date: August 30, 2016

Project/Activity Title or  
Description Ajayan Bridge Replacement Project

Location: Ajayan Bridge, Merizo, Guam

Other applicable area(s) affected, if appropriate:  
\_\_\_\_\_

Est. Start Date: January 2017 Est. Duration: 630 calendar days

**APPLICANT**

Name & Title Glenn Leon Guerrero- Director

Agency/Organization Guam Department of Public Works

Address 542 North Marine Corps Drive, 96913  
Tamuning, Guam Zip Code 96913

Telephone No. during business hours:  
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A/C (     ) \_\_\_\_\_  
Fax ( 671 ) 649-6178

E-mail Address: Glenn.Leonguerrero@dpw.gov

**AGENT**

Name & Title Michael Lanning, Program Manager

Agency/Organization Address Parsons Transportation Group, 590 South Zip Code 96913  
Marine Corps Drive, Suite 403, Tamuning, GU

Telephone No. during business hours:  
A/C ( 671 ) 648-1060  
A/C (     ) \_\_\_\_\_  
Fax ( 671 ) 646-0678

E-mail Address: Michael.Lanning@parsons.com

**CATEGORY OF APPLICATION** (check one only)

- I - Federal Agency Activity
- II - Federal Permit or License
- III - Federal Grants & Assistance

**TYPE OF STATEMENT** (check one only)

- Consistency
- General Consistency (Category I only)
- Negative Determination (Category I only)
- Non-Consistency (Category I only)

**APPROVING FEDERAL AGENCY** (Categories II & III only)

Agency Federal Highways Administration (FHWA)

Contact Person Richelle Takara

Telephone No. during business hours:

Area Code (808) 541-2311

Area Code ( )

**FEDERAL AUTHORITY FOR ACTIVITY**

Title of Law Moving Ahead for Progress in the 21st Century Act (MAP-21)

Section 1114 Territorial and Puerto Rico Highway Program

**OTHER GUAM APPROVALS REQUIRED:**

Agency	Type of Approval	Date of Application	Status
Guam EPA	NPDES Permit for Stormwater Associated with Construction Activities		In Progress
Guam EPA	NPDES Permit for Discharge of Construction Activity Dewatering Effluent		In Progress
USACE	Section 404 Permit		In Progress
Guam EPA	Section 401 Permit		In Progress
Guam Seashore Protection Commission	Guam Seashore Clearance Permit		In Progress
Categorical Exclusion		September 2016	In Progress
State Historic Preservation Office	NHPA Section 106	September 2016	In Progress

**Appendix A**  
**Project Location Map**

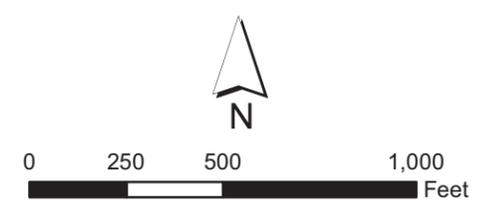
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Path: P:\ENM\Federal\NAV\CLEAN\_I\ICTO\_HC31\_60134842\50\_Data\GIS\02\_RIFS\_Report\MXD\Figure 1 - Project Location Map.mxd Date: 10/26/2012



LEGEND	
	Ajayan Bridge
	Ajayan River

NOTES
1. Base Map: Orthophoto Mosaic 2009.
2. Map projection: World Geodetic System 1984 Universal Transverse Mercator Zone 55N



**Figure 1**  
**Project Location Map**  
**Ajayan Bridge Replacement**  
**Merizo, Guam**

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**Appendix B**  
**Site Photographs**

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Photo 1 – Cracking demonstrating differential movement of the bridge



Photo 2 – Undermining of south abutment pile cap



Photo 3 – View from the north and east of the Ajayan Bridge



Photo 4 - View from the south east of the Ajayan Bridge



Photo 5 - Vegetation to the south of Route 4



Photo 6 – Vegetation immediately to the south and east of the east Ajayan Bridge abutment



Photo 7 – View from the Ajayan Bridge of the vegetation immediately to the south and east

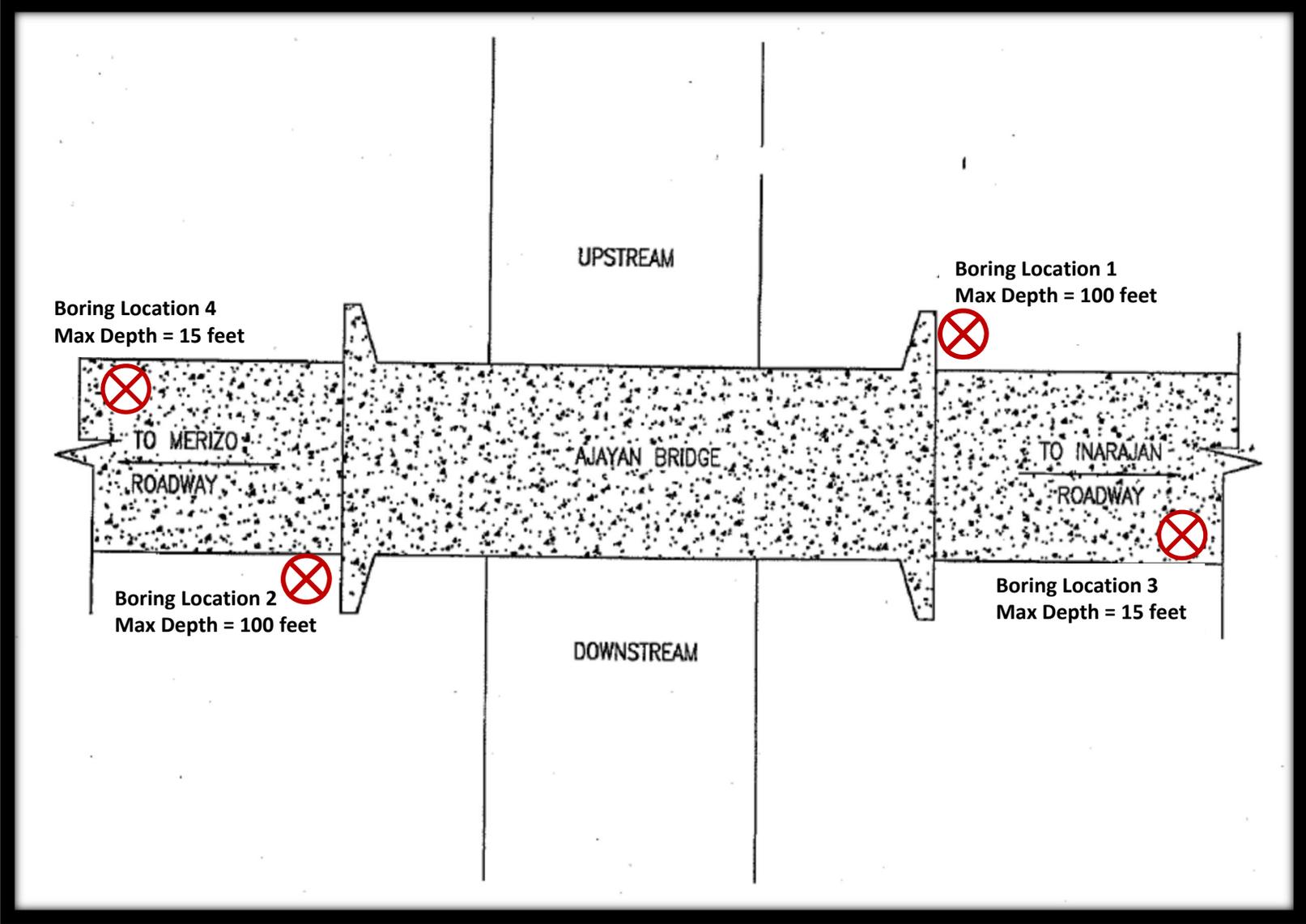


Photo 8 – Vegetation to the North and East of the Ajayan Bridge

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**Appendix C**  
**Proposed Geotechnical Soil Boring Locations**

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Proposed Geotechnical Soil Boring Locations

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**Appendix D**  
**Bridge Profile**

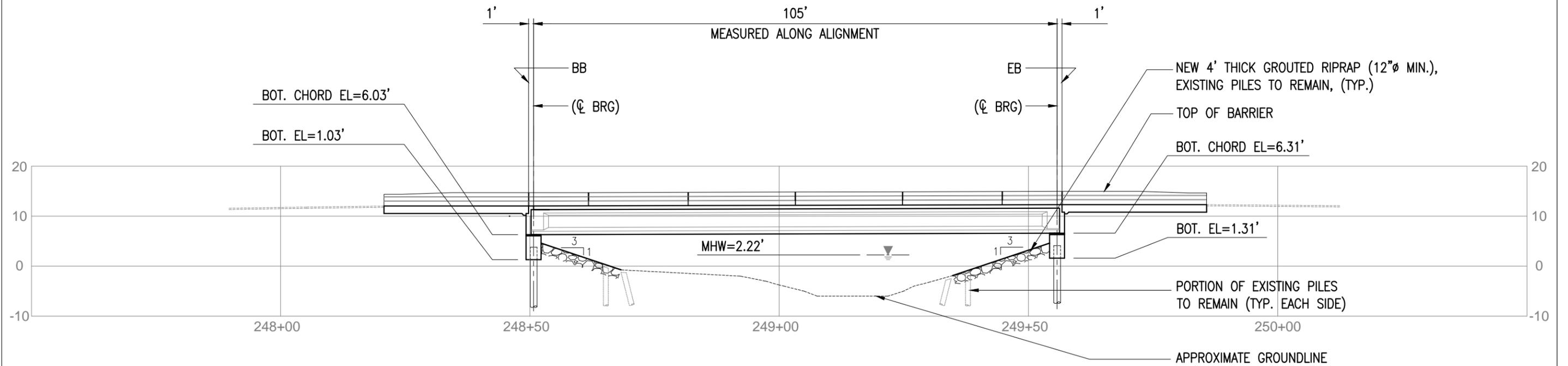
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ROUTE 4 STA. 248+50.73 (☉ BRG)  
ELEV. = 12.10'

PROPOSED GRADE  
@ ☉ ROUTE 4

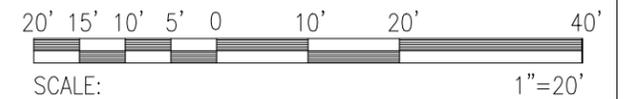
ROUTE 4 STA. 249+55.73 (☉ BRG)  
ELEV. = 12.38'

**PROFILE**  
SCALE: 1" = 20'



**DEVELOPED ELEVATION**  
SCALE: 1" = 20'

NOTES:  
50-YEAR WATER LEVEL=2.7' ABOVE MHHW  
100-YEAR WATER LEVEL=12' ABOVE MHHW  
AND MHHW IS 0.99' ABOVE MSL



DRAWING REVISIONS				
REVISION	DATE	BY	DESCRIPTION	



DESIGNER  
NCM/JMC

DETAILER  
MDC/RSS

CHECKER  
NCM/AMD/VWAC

DATE  
JULY 31, 2013



**N.C. MACARIO & ASSOCIATES, INC.**  
270 Guerrero Drive Aka Pick-A-Nail Road Tamuning Guam 96913  
Tel. 646-0947/48 Fax: 646-0901  
Email: ncmo@guam.net

**AJAYAN BRIDGE REPLACEMENT  
MERIZO, GUAM**

**DEVELOPED ELEVATION & PROFILE**

GUAM DEPARTMENT OF PUBLIC WORKS					
VILLAGE	TERRITORY	PROJECT	DRAWING	SHEET NO.	TOTAL NO.
MERIZO	GUAM	GQ-ER-0004(114)	S-4	38	66

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**Appendix E**  
**Traffic Control Plans**

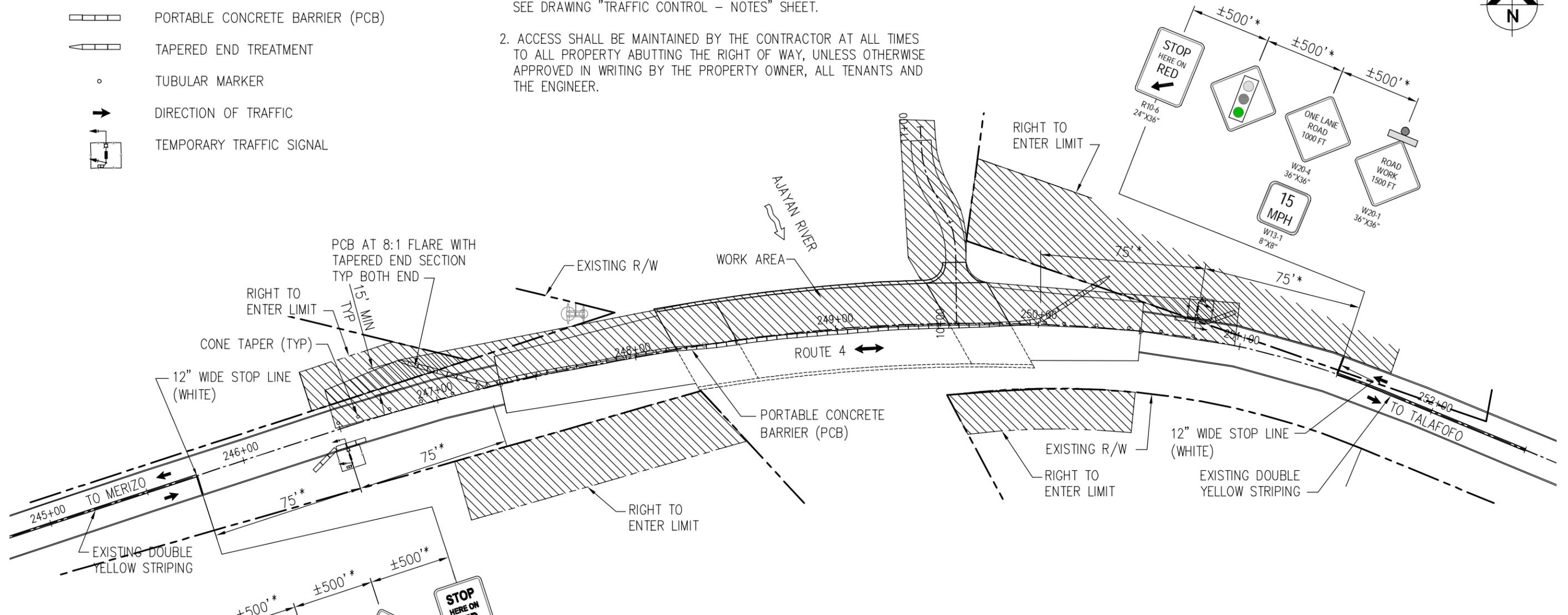
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**LEGEND:**

-  WORK AREA AND RIGHT TO ENTER LIMIT
-  PORTABLE CONCRETE BARRIER (PCB)
-  TAPERED END TREATMENT
-  TUBULAR MARKER
-  DIRECTION OF TRAFFIC
-  TEMPORARY TRAFFIC SIGNAL

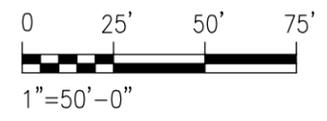
**NOTE:**

1. FOR SIGNING AND PORTABLE CONCRETE BARRIERS (PCB) NOTES, SEE DRAWING "TRAFFIC CONTROL - NOTES" SHEET.
2. ACCESS SHALL BE MAINTAINED BY THE CONTRACTOR AT ALL TIMES TO ALL PROPERTY ABUTTING THE RIGHT OF WAY, UNLESS OTHERWISE APPROVED IN WRITING BY THE PROPERTY OWNER, ALL TENANTS AND THE ENGINEER.



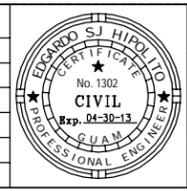
1
**PLAN - TRAFFIC CONTROL - PHASE 1**  
 SCALE 1"=50'-0"

\* ALL DIMENSIONS SHOWN ARE MEASURED ALONG STA LINE.



**AECOM**  
 414 W. Soledad Avenue Ste 708  
 Hagatna, Guam 96910  
 (671) 488-8325

DRAWING REVISIONS			
REVISION	DATE	BY	DESCRIPTION



DESIGNER  
E. HIPOLITO  
 DETAILER  
E. LANDAS  
 CHECKER  
E. HIPOLITO  
 DATE  
JULY 31, 2013

**N.C. MACARIO & ASSOCIATES, INC.**  
 270 Guerrero Drive Aka Pick-A-Nail Road Tamuning Guam 96913  
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**AJAYAN BRIDGE REPLACEMENT  
 MERIZO, GUAM  
 TRAFFIC CONTROL - PHASE 1**

GUAM DEPARTMENT OF PUBLIC WORKS					
VILLAGE	TERRITORY	PROJECT	DRAWING	SHEET NO.	TOTAL NO.
MERIZO	GUAM	GQ-ER-0004(114)	TC-2	20	66

100% SUBMITTAL

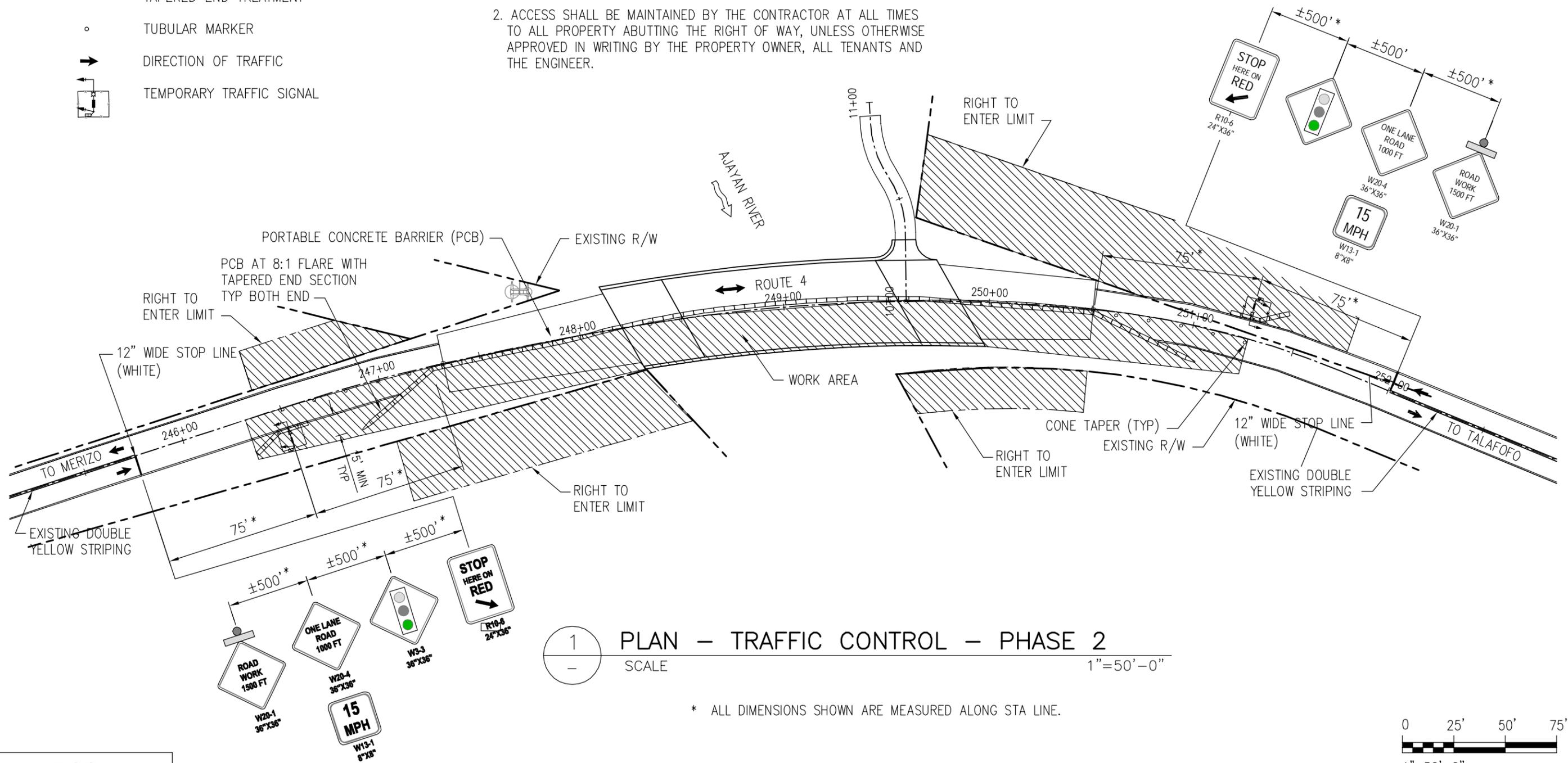
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LEGEND:

-  WORK AREA AND RIGHT TO ENTER LIMIT
-  PORTABLE CONCRETE BARRIER (PCB)
-  TAPERED END TREATMENT
-  TUBULAR MARKER
-  DIRECTION OF TRAFFIC
-  TEMPORARY TRAFFIC SIGNAL

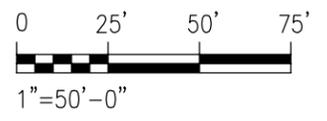
NOTE:

1. FOR SIGNING AND PORTABLE CONCRETE BARRIERS (PCB) NOTES, SEE DRAWING "TRAFFIC CONTROL - NOTES" SHEET.
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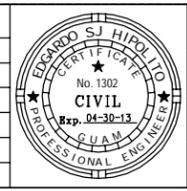
1 PLAN - TRAFFIC CONTROL - PHASE 2  
 SCALE 1"=50'-0"

\* ALL DIMENSIONS SHOWN ARE MEASURED ALONG STA LINE.



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DRAWING REVISIONS			
REVISION	DATE	BY	DESCRIPTION



DESIGNER  
E. HIPOLITO  
 DETAILER  
E. LANDAS  
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E. HIPOLITO  
 DATE  
JULY 31, 2013

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**AJAYAN BRIDGE REPLACEMENT  
 MERIZO, GUAM  
 TRAFFIC CONTROL - PHASE 2**

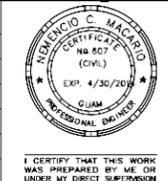
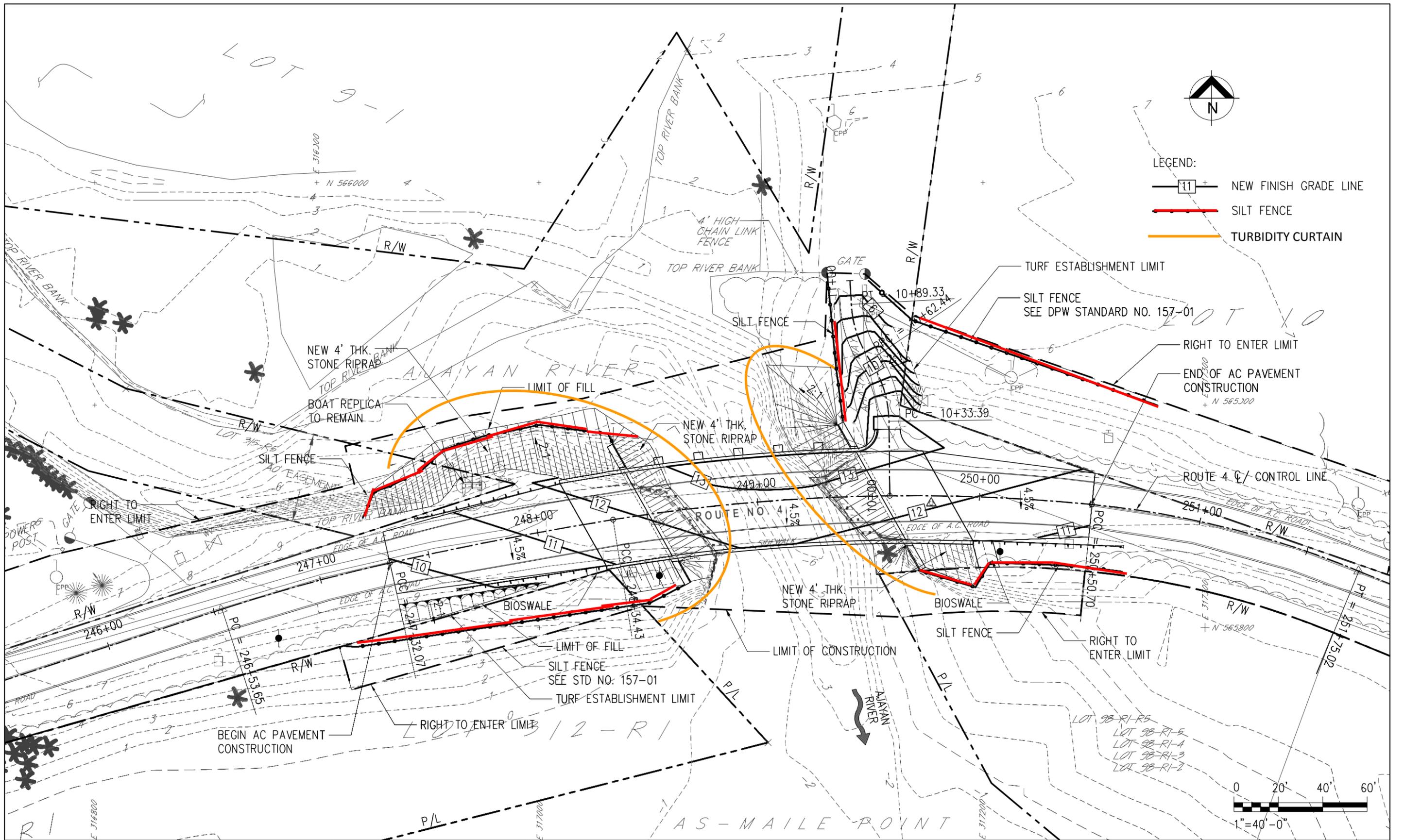
GUAM DEPARTMENT OF PUBLIC WORKS					
VILLAGE	TERRITORY	PROJECT	DRAWING	SHEET NO.	TOTAL NO.
MERIZO	GUAM	GQ-ER-0004(114)	TC-3	21	66

SUBMITTAL 100%

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**Appendix F**  
**BMP Drawings**

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DESIGNER: NCM  
 DETAILER: MDC/RSS  
 CHECKER: AMD  
 DATE: JULY 31, 2013


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 Email: ncm@guam.net

**AJAYAN BRIDGE REPLACEMENT**  
**MERIZO, GUAM**  
**GRADING AND DRAINAGE PLAN/  
 STORM WATER MANAGEMENT BMPS**

GUAM DEPARTMENT OF PUBLIC WORKS					
VILLAGE	TERRITORY	PROJECT	DRAWING	SHEET NO.	TOTAL NO.
MERIZO	GUAM	GQ-ER-0004(114)	C-7	14	66

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## **Appendix G**

### **Agency Consultation Correspondence**

- G.1 Government of Guam, Department of Agriculture, Division of Aquatic and Wildlife Resources
- G.2 Government of Guam, Bureau of Statistics and Plans, Coastal Management Program
- G.3 Government of Guam, Department of Land Management
- G.4 Government of Guam, Department of Land Management, Guam Seashore Protection Commission
- G.5 Government of Guam, Environmental Protection Agency
- G.6 Government of Guam, State Historic Preservation Office
- G.7 National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Pacific Islands Regional Office, Protected Resources Divisions – Endangered Species Act Consultation
- G.8 National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Pacific Islands Regional Office, Habitat Conservation Division – Essential Fish Habitat
- G.9 United States Fish and Wildlife Service
- G.10 United States Army Corps of Engineers
- G.11 United States Coast Guard

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G.1 Government of Guam, Department of Agriculture, Division of Aquatic and Wildlife Resources

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April 17, 2012

Mariquita F. Taitague  
Department of Agriculture  
Government of Guam  
Division of Aquatic and Wildlife Resources  
163 Dairy Road  
Mangilao, Guam 96913

Subject: Ajayan Bridge Replacement Project, Division of Aquatic and Wildlife  
Resources Consultation

Director Taitague,

The U.S. Department of Transportation - Federal Highways Administration (FHWA), in coordination with the Guam Department of Public Works (DPW) proposes to replace the existing Ajayan River Bridge located on Route 4, on the boundary between Merizo and Inarajan. AECOM is contacting your agency on behalf of the DPW and FHWA. A Categorical Exclusion document for compliance with the National Environmental Policy Act (NEPA) will be prepared for the project.

#### **Ajayan Bridge Existing Condition**

The Ajayan River Bridge is located on Route 4 on the boundary between Merizo and Inarajan, as shown in Figure 1-1.

The existing single span cast-in-place concrete box girder bridge was constructed in 1968 with a span of approximately 76.2 feet and a skew of 40 degrees. Abutments are founded on concrete piles and the deck has an asphalt concrete wearing surface. The most recent bridge inspection report, dated May 27, 2004, noted that the substructure and channel are rated in serious condition with cracking and differential movement noted for substructure units and significant scour at abutments, as shown in the attached Photo Log. The channel alignment and waterway opening are also noted as deficient.

#### **Proposed Action**

The proposed action would replace the existing two-lane bridge across the Ajayan River just upstream of the river mouth as it enters the ocean. Bridge abutment slopes would be protected from erosion by placement of stone rip rap. There would be minimal roadway approach work. Proposed improvements include two 12-foot lanes with 8-foot paved shoulders. Roadway alignment and grade would match existing at points of tie-in. Roadway work within project limits would include removal of the existing pavement and design of full-depth pavement replacement and replacement of guardrail. The proposed action would include geotechnical sampling, testing, and analysis. As shown in Figure 1-2, soil borings for bridge foundations would be taken at two locations, one at each proposed substructure unit, to a depth of at least 100 feet or at least 10 feet into competent bedrock, whichever is shallower. Additionally, two shallow borings to a depth of 15 feet would be taken within the roadway approach area. All work would be conducted within existing right-of-way.

The FHWA requests that you review the project information provided above to determine if there are any Division of Aquatic and Wildlife Resources issues or other Department of Agriculture issues that may be affected by this undertaking. Please feel free to contact me at 808.356.5394 (office), 808.223.9213 (cell), or via email at [Jennifer.Scheffel@aecom.com](mailto:Jennifer.Scheffel@aecom.com).

Thank you for your attention to this project notification and any comments you may have.

Sincerely,



Jennifer M. Scheffel  
Environmental Planner

Enclosures: Figure 1-1: Site Location Map  
Figure 1-2: Geotechnical Soil Boring Locations  
Photo Log

cc: Jay T. Gutierrez, DAWR  
Brent Tibbatts, DAWR  
Thomas Flores, Jr., DAWR  
Joanne M. S. Brown, DPW  
Ramon Padua, DPW  
Joaquin Blaz, DPW  
Paul Wolf, PB  
Nora Camacho, PB  
James Mischler, PB  
Edgar Hipolito, AECOM  
Kosal Krishnun, AECOM  
Nemencio Macario, N.C. Macario & Associates, Inc.



Edward J.B. Calvo  
Governor

Raymond S. Tenorio  
Lt. Governor

## Department of Agriculture Dipattamenton Agrikottura

163 Dairy Road, Mangilao, Guam 96913

Director's Office	734-3942/43; Fax 734-6589
Agricultural Dev. Services	734-3946/47; Fax 734-8096
Animal Health	734-3940
<b><u>Aquatic &amp; Wildlife Resources</u></b>	<b>735-3955/56; Fax 734-6570</b>
Forestry & Soil Resources	735-3949/50; Fax 734-0111
Plant Nursery	734-3949
Plant Inspection Facility	472-1426; 475-1427; Fax 477-9487



Mariquita F. Taitague  
Director

Manuel Q. Cruz  
Deputy Director

**May 23, 2012**

Ms. Jennifer M. Scheffel  
Environmental Planner  
AECOM  
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Honolulu, HI 96813  
[www.aecom.com](http://www.aecom.com)

**Re: Ajayan Bridge Replacement Project, Division of Aquatic and Wildlife Resources Consultation**

Dear Ms. Scheffel:

On April 24, 2012, the Department of Agriculture's Division of Aquatic and Wildlife Resources (DAWR) received a letter dated April 17, 2011 requesting for review and comments regarding the proposed Replacement project for the Agfayan Bridge, Merizo to adhere to the Categorical Exclusion document for compliance with the National Environmental Policy Act.

The following comments to be addressed for the proposed Agfayan Bridge replacement project are as follows, but not limited to:

1. Species protected under the Local and Federal Endangered Species Act, such as the Common moorhen (*Gallinula chloropus*), Micronesian starling (*Aplonis opaca*), Mariana fruit bat (*Pteropus m. mariannus*), Pacific tree snail (*Partula radiolata*), Green sea turtle (*Chelonia mydas*), Hawksbill sea turtle (*Eretmochelys imbricata*), and native skinks may be present at the proposed project site. Surveys to determine the presence for the native tree snail and native skink should occur prior the implementation of the project.

2. Many of the of Guam's species of greatest conservation need, as documented within the Guam Comprehensive Wildlife Conservation Strategy (2006), may also occur at the project site. Surveys to determine the absence or presence of these species should be conducted prior to the implementation of the project.
3. From September to April, migratory birds, protected under the Migratory Bird Treaty Act of 1917, may use the project site as a foraging ground. The protected species must not be harmed or harassed.
4. Erosion control device(s) should be employed at the job site preventing debris and soil from entering the river. Device(s) must be secured and able to withstand heavy rains and winds.
5. Construction debris must be removed immediately and not stored at the job site. Debris includes but not limited to, excavated soil, cement material, pipings, asphalt, etc.
6. Dust control devices or methodology (wetting) must be employed at the jobsite during construction.
7. Contractor must consult with the Department at least a week in advance prior any vegetation removal action.
8. Contractor must have absorbent pads readily available at the job site during heavy equipment operations and equipment must be inspected for leaks prior to use.
9. Lighting to be use during construction in the evening hours must be directed away from the shoreline facing inland to minimize impact to sea turtles.

DAWR is looking forward to future communication regarding this project. Feel free to contact Mr. Celestino Aguon, DAWR Chief, Mr. Jeff Quitugua and Mr. Brent Tibbatts, DAWR Biologists for comments or questions with this matter.

  
MARIQUITA F. TAITAGUE



# Department of Agriculture Dipattamenton Agrikottura

163 Dairy Road, Mangilao, Guam 96913



**Edward J.B. Calvo**  
Governor

**Raymond S. Tenorio**  
Lt. Governor

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Plant Nursery	734-3949
Plant Inspection Facility	472-1426; 475-1427; Fax 477-9487

**Mariquita F. Taitague**  
Director

**Manuel Q. Cruz**  
Deputy Director

**January 08, 2013**

Ms. Jennifer M. Scheffel  
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[www.aecom.com](http://www.aecom.com)

**Re: Ajayan Bridge Replacement Project, Division of Aquatic and Wildlife Resources Consultation**

Dear Ms. Scheffel:

The Department had provided comments but had referenced the Agfayan Bridge (attached). We provide the following comments to be addressed for the proposed Ajayan Bridge replacement project as follows, but not limited to:

1. Species protected under the Local and Federal Endangered Species Act, such as the Common moorhen (*Gallinula chloropus*), Micronesian starling (*Aplonis opaca*), Mariana fruit bat (*Pteropus m. mariannus*), Pacific tree snail (*Partula radiolata*), Green sea turtle (*Chelonia mydas*), Hawksbill sea turtle (*Eretmochelys imbricata*), and native skinks may be present at the proposed project site. Surveys to determine the presence for the native tree snail and native skink should occur prior the implementation of the project.
2. Many of the of Guam's species of greatest conservation need, as documented within the Guam Comprehensive Wildlife Conservation Strategy (2006), may also occur at the project site. Surveys to determine the absence or presence of these species should be conducted prior to the implementation of the project.

3. From September to April, migratory birds, protected under the Migratory Bird Treaty Act of 1917, may use the project site as a foraging ground. The protected species must not be harmed or harassed.
4. Erosion control device(s) should be employed at the job site preventing debris and soil from entering the river. Device(s) must be secured and able to withstand heavy rains and winds. All EPA and ACOE Water Quality BMPs must be followed.
5. Construction debris must be removed immediately and not stored at the job site. Debris includes but not limited to, excavated soil, cement material, pipings, asphalt, etc.
6. Dust control devices or methodology (wetting) must be employed at the jobsite during construction.
7. Contractor must consult with the Department at least a week in advance prior any vegetation removal action.
8. Contractor must have absorbent pads readily available at the job site during heavy equipment operations and equipment must be inspected for leaks prior to use.
9. Lighting to be use during construction in the evening hours must be directed away from the shoreline facing inland to minimize impact to sea turtles.
10. The river channel cannot be blocked. Guam's native river organisms must be able to reach the ocean as a part of their life history. Open passage must be maintained at all times.
11. Coral spawning takes place around the last quarter moon of July and August. No in-water work should take place within three days of this moon phase.
12. The Ajayan Bridge is located in the Achang Reef Flat Marine Protected Area (MPA). There is no take of marine organisms allowed within this MPA. Any take to include killing, damaging, or wounding of marine organisms is a violation of local natural resource laws.

DAWR is looking forward to future communication regarding this project. Should you have any questions, please contact Mr. Jeffrey Quitugua or Mr. Brent Tibbatts, at (671) 735-3955/56.

  
MARIQUITA F. TAITAGUE

Attachment(s):



*The Honorable*  
**Eddie Baza Calvo**  
*Governor*

*The Honorable*  
**Ray Tenorio**  
*Lieutenant Governor*

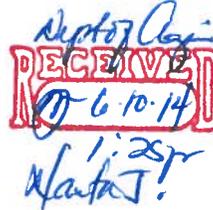


**Carl V. Dominguez**  
*Director*

**Jessie B. Palican**  
*Deputy Director*

June 4, 2014

Ms. Mariquita F. Taitague  
Department of Agriculture  
Government of Guam  
Division of Aquatic and Wildlife Resources  
163 Dairy Road  
Mangilao, Guam 96913



**Subject: Guam Endangered Species Act Regulation No. 9 Consultation for Proposed Ajayan Bridge Replacement, Route 4, Project No. GQ-ER-0004(114)**

Dear Ms. Taitague:

The Government of Guam (GovGuam) Department of Public Works (DPW) and the U.S. Department of Transportation (USDOT) Federal Highways Administration (FHWA) proposes to replace the existing Ajayan River Bridge located on Route 4, on the boundary between Merizo and Inarajan. This letter provides additional project details, results from flora and fauna surveys performed for the project, proposed avoidance and minimization measures, and an assessment of potential effects to species protected under Guam Endangered Species Regulation No. 9 [5 GCA, Sect. 63.205(c)].

### **Ajayan Bridge Existing Condition**

The Ajayan Bridge is located on Route 4 on the boundary between Merizo and Inarajan. The bridge provides two lanes that cross the Ajayan River just upstream of the river mouth as it enters the ocean, as shown in Enclosure 1 – Project Location Map.

The existing single-span cast-in-place concrete box girder bridge was constructed in 1968, with a span length of approximately 76.2 feet and a skew of 40 degrees. Abutments are founded on concrete piles; the deck has an asphalt concrete wearing surface. The most recent bridge inspection report, dated May 27, 2004, noted that the substructure and channel are rated in serious condition. The damage noted includes cracking and differential movement of substructure units and significant scour at abutments, as shown in Enclosure 2 – Photo Log.

### **Project Description**

The existing bridge will be demolished and replaced with a new 40-foot-wide by 105-foot-long bridge. The proposed improvements include two 12-foot-wide lanes and two 8-foot-wide paved shoulders. Roadway alignment and grade will match the existing at the point of tie-in.

To accommodate traffic while the new bridge is being constructed, the bridge will be demolished in two phases, demolishing one side (longitudinally) of the bridge at a time. This will allow two-way traffic (one lane, controlled by traffic lights) to use the bridge during demolition and construction.

The project will entail the demolition and removal of the existing bridge structure and existing pile caps. The existing piles below the waterline will be cut and capped at the mudline, but left in-place. This will provide for minimal disturbance of the aquatic ecosystem. Roadway work within the project limits will include removal of the existing pavement, full-depth pavement replacement, and replacement of the guardrails. The proposed action will also include geotechnical sampling, testing, and analysis. As shown in Enclosure 3 – Proposed Geotechnical Soil Boring Locations, soil borings for bridge foundations will be taken at two locations, one at each proposed substructure unit, to a depth of at least 100 feet or at least 10 feet into competent bedrock, whichever is shallower. Additionally, two shallow borings to a depth of 15 feet will be taken within the roadway approach area.

## **Demolition and Construction Methods**

### **Demolition**

Bridge demolition will include removal of the existing bridge deck, box beam, abutments, wing walls, guardrails, and parapet. The existing bridge is approximately 29.6 feet wide and will be demolished in two phases to allow for one lane to remain open for traffic. Phase 1 will include saw-cutting the westbound portion of the existing bridge and removing it by crane. Phase 2 will include the same actions to the eastbound portion of the existing bridge. Before demolition and removal, a temporary concrete barrier will be installed on the existing bridge, and existing utilities will be temporarily relocated to the opposite portion of the bridge during each phase.

Demolition of the existing abutment walls will be accomplished by use of jackhammers and/or hoe rams, and removed via mechanical equipment such as a backhoe. The existing bridge abutments will be demolished and the existing piles will be cut down to the river bed. The soil between the old abutment and new abutment will be excavated, and 48-inch-thick grouted riprap will be placed on a gradual slope from the new abutment to the remaining old pilings, as shown in Enclosure 4 – Bridge Profile. A combined total of approximately 540 cubic yards of soil and concrete abutment wall material will be excavated from below the mean high water (MHW) line of the Ajayan River. The combined total linear disturbance to the stream channel from the excavation of the soil and concrete abutment wall material will be approximately 407 linear feet.

### **Construction**

Construction of the new bridge will also be performed in two phases so that two-way signal-controlled traffic can be maintained in one lane during construction. Phase 1 will include demolition of the existing westbound portion of the bridge and construction of the new westbound portion of the bridge. During Phase 1, utilities and two-way signal-controlled traffic will be temporarily relocated to the eastbound portion of the existing bridge. Phase 2 will include demolition of the existing eastbound portion of the bridge and construction of the new eastbound portion of the bridge. During Phase 2, utilities will be permanently installed in the westbound portion of the new bridge, and two-way signal-controlled traffic will be temporarily relocated to the westbound portion of the new bridge. Work areas for Phase 1 and Phase 2 are shown in Enclosure 5 – Traffic Control Plans.

A new bridge foundation will be constructed inland, or behind, the existing abutment to minimize disturbance to the river channel. The proposed abutments will be set back from the existing abutments. The soil and grouted riprap between the remaining existing piles and the new abutment will be sloped back at a 3H:1V ratio. The two new abutments will be constructed at the top of the slope and supported by twelve piles (per abutment), for a combined total of twenty-four new octagonal 16.5-inch-diameter concrete piles (100 tons per pile). The new abutments and abutment piles will be constructed above the MHW line.

Approximately 947 cubic yards of grouted stone riprap will be placed along the abutment walls, below the MHW line, to protect the abutment from erosion caused by waves. The riprap (fill material) will be placed along approximately 401 linear feet of stream channel. The riprap will

be placed within the excavation footprint and will not impact additional areas of the stream channel.

### Best Management Practices

Best management practices (BMPs) will include catchment platforms and protective netting, silt screen fences, and turbidity curtains. Catchment platforms and protective netting will be installed under the bridge to keep debris from falling into the water. Silt screen fences will be placed at the slope toe around the river edges to prevent erosion and rubbish from going into the water. Turbidity curtains will be installed at both river banks surrounding the work areas to prevent the spread of silt and sediment into the river and bay (see Enclosure 6 – BMP Drawings).

### **Natural Environments**

The proposed project is located within the southern end of Guam, which is characterized by hilly volcanic slopes descending from approximately 800 feet in elevation to sea level over distances of less than 2.5 miles. The project site is situated between the Inarajan and Manell watersheds. The Ajayan Bridge is situated on the southern end of the Ajayan River, adjacent to the Ajayan Bay discharge point. Flora and fauna surveys of the proposed project area were conducted by SWCA Environmental Consultants (SWCA) on November 6 and 7, 2013. During these surveys, emphasis was placed on identifying special-status species. The following paragraphs describe the existing terrestrial and aquatic environments that occur within the proposed project area as reported by SWCA and Guam Department of Agriculture, Division of Aquatic and Wildlife Resources (DAWR).

### Terrestrial Ecology

Forest surrounding the project area consists mostly of secondary thicket/scrub forest with some ravine forest. Areas of forested palustrine wetlands are located along the east and west banks of the Ajayan River. Several typhoons that occurred between the 1970s and 1990s changed the vegetation in the area dramatically. Site visits conducted by Guam DAWR staff in February and March 2013 found that pago (*Hibiscus tiliaceus*) and tangantangan (*Leucaena leucocephala*) were the two common species in the project area.

During flora surveys performed by SWCA on November 6 and 7, 2013, a total of 19 plants were identified to either genera or species. The seven native plants documented consisted of five trees (pago, *Pandanus tectorius*, *Bougainvillea glabra*, *Callicarpa candicans*, and *Morinda citrifolia*), one fern (*Polypodium scolopendria*), and one grass (*Saccharum spontaneum*). The non-native plants documented were puguá (*Areca catechu*), coconut trees (*Cocos nucifera*), beggar's tick (*Bidens alba*), Siam weed (*Chromolaena odorata*), mile-a-minute vine (*Mikania scanden*), daok (*Calophyllum inophyllum*), papaya (*Carica papaya*), tangantangan, kamachile (*Pithecellobium dulce*), and *Musa* sp.

### Shoreline Ecology

The project area is located at the mouth of the Ajayan River as it discharges into Achang Reef Flat. The shoreline vegetation is composed primarily of coconut trees, pago, and tangantangan.

Although not located within the boundaries of the project area, a small *Nypa* palm (*Nypa fruticans*) (also referred to as “Nipa”) community was identified approximately 10 meters upstream of the Ajayan River. This species is a wetland obligate and grows in brackish marshes.

### Aquatic Ecology

The Ajayan River flows south and discharges at the Ajayan Bay. The Ajayan Bay includes the eastern portion of the Achang Reef Flat Marine Preserve, as shown in Enclosure 7 – Achang Reef Flat Marine Preserve. The Ajayan River channel cuts completely through the reef flat at Ajayan Bay. The reef flat consists of inner and outer reef flats that are exposed at low tide. Mangroves and sea grass beds are present in the vicinity of the project site.

According to the University of Guam Marine Laboratory's Guam Coastal Atlas<sup>1</sup> the benthic habitat of the river channel is composed of "sand, uncolonized 90% to 100%", extending from inland waters to 500 meters offshore. The benthic habitat to the east of the channel is composed of "spur and groove, coral 10% to <50%" near the shore, and "pavement, turf 50% to <90%" after approximately 100 meters offshore. The benthic habitat to the west of the channel is composed of "spur and groove, coral 50% to <90%" near the shore, and "pavement, coral 10% to <50%" after approximately 50 meters offshore.

The Achang Reef Flat supports primarily hard corals. Only two soft coral species have been identified by the University of Guam Marine Lab, during monitoring of the site.

Achang Reef Flat is classified as M-1, Excellent. Waters in this category are suitable for whole-body contact and recreation. These waters are also needed for research and to ensure the preservation and protection of marine life, including coral, reef-dwelling organisms, fish, and related resources, and aesthetic enjoyment. The surface waters of the Ajayan River are classified as S-3, Low. Waters in this category are used primarily for commercial, agriculture, or industrial activity. Aesthetic enjoyment and recreational body contact are limited. Maintenance of aquatic life is also limited<sup>2</sup>.

### Agency Coordination

In April 2012, AECOM sent a letter to Guam Department of Agriculture Division of Aquatic and Wildlife Resources (DAWR) describing the proposed bridge replacement project and requesting guidance on potential concerns. In January 2013, AECOM received a letter from DAWR providing; (1) a list local and federal Endangered Species Act (ESA) protected species that may be present at the project site, (2) instruction that surveys for native tree snails, native skinks, and Guam's Species of Greatest Conservation Need (SOGCN) should be conducted prior to implementation of the project, and (3) a list of measures and best management practices that should be implemented to avoid and minimize potential impacts to species and habitats (Enclosure 8 – January 2013 Response from DAWR).

Letters describing proposed project activities and requesting lists of special-status species were also sent to the United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS). FHWA is sending requests to USFWS and NMFS for concurrence on ESA effect determinations. An Essential Fish Habitat consultation request has been submitted to NMFS. A description of proposed project activities has been provided to the U.S. Army Corps of Engineers (ACOE). A formal request for Clean Water Act Section 404 Permit and Rivers and Harbors Act Section 10 Permit will submitted to the ACOE.

As requested by the various agencies, flora and fauna surveys were completed for this project. SWCA performed the flora and fauna surveys and their report is included as Enclosure 9 – Flora and Fauna Surveys for the Ajayan Bridge Replacement Project.

### Species Protected Under the Local and Federal Endangered Species Act

Based on background research and the information provided by NMFS, USFWS, and the DAWR, the only species protected under the local and federal ESA, that may occur within the proposed project area are the locally and federally endangered Mariana common moorhen (*Gallinula choropus guami*), the locally endangered and federally threatened Mariana fruit bat (*Pteropus m. mariannus*), the locally endangered and federal candidate species for listing Pacific tree snail (*Partula radiolata*), locally and federally threatened green sea turtle (*Chelonia mydas*), locally and the federally endangered hawksbill sea turtle (*Eretmochelys imbricate*) and locally endangered native skinks, including the snake-eyed skink (*Cryptoblepharus poecilopleurus*), tide-pool skink (*Emoia atrocostata*), azure-tailed skink (*Emoia cyanura*), Slevin's skink (*Emoia slevini*), and moth skink (*Lipinia noctua*).

### Mariana Common Moorhen – Locally and Federally Endangered

1 University of Guam Marine Laboratory's Guam Coastal Atlas. Online at [www.guammarinelab.com/coastal.atlas/htm/Maps.htm](http://www.guammarinelab.com/coastal.atlas/htm/Maps.htm).

2 GEPA. 2001. Guam Water Quality Standards. 2001 Revision.

The federally endangered Mariana common moorhen is a slate-black bird about 14-inches in length. Distinguishing physical characteristics include a red bill and frontal shield, white under tail coverts, a white line along the flank, and long olive green legs.

The Mariana common moorhen are found in natural and man-made wetland areas of Guam, Saipan, Tinian, and Pagan of the Mariana Islands. Only these islands in the Mariana Archipelago have permanent freshwater wetlands capable of supporting the moorhen. The Mariana moorhen inhabits emergent vegetation of freshwater marshes, ponds and placid rivers. The key characteristics of moorhen habitat are the combination of robust emergent vegetation cover and open water areas.

The Mariana common moorhen nests throughout the year and typically lays eggs concealed in emergent vegetation near open water. Moorhens feed on both plant and animal matter in or near water. Grasses, adult insects, and insect larvae have been reported in moorhen stomachs<sup>3</sup>.

#### Mariana Fruit Bat – Locally Endangered and Federally Threatened

The locally endangered and federally threatened Mariana fruit bat is a medium-sized bat weighing 0.66 to 1.15 pounds, with a forearm length ranging from 5.3 to 6.1 inches. The abdomen is colored black to brown, with interspersed gray hair. The shoulders and sides of the neck are usually bright golden brown, but may be paler in some individuals. The head is brown with rounded ears and large eyes.

The Mariana fruit bat is a subspecies endemic to the Mariana archipelago. It is a highly colonial species forming large dense roosts in multiple adjacent trees. There is small percentage of non-colonial solitary roosting individuals. Mating and nursing young have been observed year-round on Guam with no consistent annual peak in births.

The bats' diet is comprised of fruits, nectar, pollen and some leaves. Due to the rapid digestion and metabolism of such foods the bats are reliant on forest habitat with diverse food sources that are available throughout the year. The Mariana fruit bat forage and roost primarily in native forest. Occasionally foraging in agricultural forests composed primarily of nonnative plants. The bats inhabit several native forest types, including primary and secondary limestone forest, volcanic forest, old coconut plantations, and groves of gaga or ironwood (*Casuarina equisetifolia*). Grass lands with isolated trees are also used by the bats. Foraging sometimes occurs at farms and residential areas with flowering or fruiting trees. On Guam, large *Ficus* spp. were the favored roosting sites. After the loss of many of these trees to typhoons, roosting shifter to *Aglaia mariannensis* (mapunao), *Macaranga thompsonii* (pengua), *Mammea odorata* (chopak), and *Neisosperma oppositifolia* (fagot). Presently the Mariana fruit bat persists in small numbers on Guam, primarily in the northern region of the island<sup>4</sup>.

#### Pacific Tree Snail – Locally Endangered and Federal Candidate Species for Listing

The locally endangered Pacific tree snail is endemic to the island of Guam. Tree snails live in cool, shaded forest habitats with high humidity and low air movement<sup>5</sup>. The Pacific tree snail was once common along stream courses in southern Guam<sup>6</sup>.

#### Green Sea Turtle – Locally and Federally Threatened

The federally threatened green sea turtle is the largest of the cheloniidae, with adults that can exceed 3.2 feet in carapace length and 268 pounds in body mass. Characteristics that distinguish the green seas turtle from

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3 U.S. Fish and Wildlife Service. 1991. Recovery Plan for the Mariana Common Moorhen (*Gallinula choropus guami*). U.S. Fish and Wildlife Service. Portland, OR.

4 U.S. Fish and Wildlife Service. 2009. Draft Revised Recovery Plan for the Mariana Fruit Bat or Fanihi (*Pteropus mariannus mariannus*). U.S. Fish and Wildlife Service, Portland, Oregon.

5 Guam National Wildlife Refuge and U.S. Fish and Wildlife Service. 2009. Guam National Wildlife Refuge Comprehensive Conservation Plan. Guam National Wildlife Refuge, Yigo, Guam and U.S. Fish and Wildlife Service. Honolulu, Hawaii.

6 Hopper, D.R. and B.D. Smith. 1992. Status of tree snails (Gastropoda: Partulidae) on Guam, with a resurvey of sites studied by H.E. Crampton in 1920. Pacific Science 46: 77-85.

other species of sea turtle include a smooth carapace with four pairs of lateral scutes, a single pair of prefrontal scales, and a lower jaw-edge that is coarsely serrated, corresponding to strong grooved and ridges on the inner surface of the upper jaw.

The green sea turtle is a circumglobal species found in tropical seas and, to a lesser extent, in subtropical waters with temperatures above 20°C. In the Pacific United States (U.S.) and its territories, the green sea turtle is found along the coasts of Hawaii, American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, and unincorporated U.S. island possessions.

The green sea turtle occupies three habitat types that include open beaches, open sea, and feeding grounds in shallow, protected waters. The open beaches are used for nesting purposes where the adult female green sea turtles will emerge at night to excavate nests and deposit a clutch that may be in excess of approximately 100 eggs. The green sea turtle use the shallow water habitats to forage, feeding on selected macroalgae and sea greases. The green sea turtle spends the remaining time in the open sea where they may rest and/or are in transient to feeding grounds and/or nesting habitat<sup>7</sup>.

#### Hawksbill Sea Turtle – Locally and Federally Endangered

The federally endangered hawksbill sea turtle is recognized by their relatively small (carapace length less than 3.1 feet), narrow head with tapering “beak,” thick, overlapping shell scutes, and strongly serrated posterior margin of the carapace. In addition, hawksbills may be distinguished from the green sea turtle by the transverse division of the prefrontal scales into two pairs (these scales are elongate and undivided in the green sea turtle).

Hawksbill sea turtles are circumtropical in distribution, generally occurring from 30°N to 30°S latitude within the Atlantic, Pacific, and Indian Oceans and associated bodies of water. Along the far western and southwestern Pacific, hawksbills nest on the islands and mainland of Southeast Asia, from China and Japan, throughout the Philippines, Malaysia, and Indonesia, to Papua New Guinea, the Solomon Islands, and Australia.

The hawksbill sea turtle typically selects remote pocket beaches with little exposed sand to nest and deposit their eggs. The nest site is often within the cover of woody vegetation, although some will occasionally nest in grass or open sand if preferred cover is not accessible. Hawksbills are typically found feeding on jellyfish, sea urchins, and sponges within the vicinity of rock or reef habitat in shallow tropical waters with little turbidity<sup>8</sup>.

#### Native Skinks – Locally Endangered

Locally endangered skinks on the island of Guam include snake-eyed skink, tide-pool skink, azure-tailed skink, Slevin’s skink, and moth skink. Populations of snake-eyed skink, Slevin’s skink, azure-tailed skink, and moth skink are no longer found on Guam or persist in very low numbers<sup>9</sup>.

#### Potential Suitable Foraging and Nesting Habitat for Mariana Common Moorhen

No wetlands as designated by the National Wetlands Inventory are located in the project area. However, potentially suitable wetland foraging and nesting habitat for Mariana common moorhen is present within the vicinity of the proposed project. Freshwater wetlands have been identified less than 10 meters upstream from the project site. While uncommon, Mariana common moorhens have been observed near this area. The area has been designated as habitat of low potential for this species.

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7 National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1998. Recovery Plan for U.S. Pacific Populations of the Green Turtle (*Chelonia mydas*). National Marine Fisheries Service. Silver Spring, MD.

8 National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1998. Recovery Plan for U.S. Pacific Population of the Hawksbill Turtle (*Eretmochelys imbricate*). National Marine Fisheries Service. Silver Spring, MD.

9 Guam National Wildlife Refuge and U.S. Fish and Wildlife Service. 2009. Guam National Wildlife Refuge Comprehensive Conservation Plan. Guam National Wildlife Refuge, Yigo, Guam and U.S. Fish and Wildlife Service. Honolulu, Hawaii.

#### Potential Suitable Foraging and Roosting Habitat for Mariana Fruit Bat

The Mariana fruit bat is not anticipated to use habitat at or near the proposed project site. Secondary thicket/scrub forest and trees including pango, *Pandanus tectorius*, *Bougainvillea glabra*, *Callicarpa candicans*, and *Morinda citrifolia* are present at the project site. However, this is not the preferred forest type or tree species inhabited by Mariana fruit bat. Forest habitat at the project site may not provide diverse food sources need to support Mariana fruit bats. The Mariana fruit bat is primarily found in the northern region of the island, persisting in small numbers. No Mariana fruit bats were observed during station count surveys of the project area performed on November 6 and 7, 2013, described in Enclosure 9 – Flora and Fauna Surveys for the Ajayan Bridge Replacement Project.

#### Potential Suitable Habitat for Pacific Tree Snail

Suitable habitat for Pacific tree snail is present within the vicinity of the proposed project. The Pacific tree snail was once common along stream courses in southern Guam. However, no Pacific tree snails were recorded during partulid tree snail surveys of the project area performed on November 6 and 7, 2013, described in Attachment I – Flora and Fauna Surveys for the Ajayan Bridge Replacement Project.

#### Potential Suitable Foraging and Nesting Habitat for Green and Hawksbill Sea Turtles

Suitable foraging habitat for green sea turtle and the hawksbill sea turtle is present within the vicinity of the proposed project. The Achang Reef Flat Marine Preserve provides foraging habitat for sea turtles, with food sources such as macroalgae, seagrass beds, and reef-dwelling organisms. Sea turtles have been observed foraging in Ajayan Bay.

Turtle nesting areas are not present at the project site. The *Recovery Plan for U.S. Pacific Populations of Green Turtle* (dated Jan. 12, 1998) reports that there is some low-level nesting of green sea turtle on Guam. The *Recovery Plan for U.S. Pacific Populations of the Hawksbill Turtle* (dated Jan. 12, 1998) reports that hawksbill nesting is rare on Guam. Known turtle nesting beaches on Guam include Ritidian National Wildlife Refuge, Haputo, Urunao, Tumon Bay, Cabras Island, Spanish Steps, Cocos Island, Acho Bay, Nomña Bay, Jinapsan, Tarague Beach, and the waterfront annex of Naval Base Guam<sup>10&11</sup>. The closest known turtle nesting beach to the project site is Acho Bay located approximately one mile (1.6 kilometers) northeast of the project site.

#### Potential Suitable Habitat for Locally Endangered Native Skinks

Suitable habitat for native skinks is present within the vicinity of the proposed project. However, the likelihood of locally endangered native skinks (snake-eyed skink, tide-pool skink, azure-tailed skink, Slevin's skink, and moth skink) being present in the project area is low, as populations of snake-eyed skink, Slevin's skink, azure-tailed skink, and moth skink may no longer be found on Guam. No native skinks were recorded during trap and visual surveys of the project area performed on November 6 and 7, 2013, described in Attachment I – Flora and Fauna Surveys for the Ajayan Bridge Replacement Project.

#### **Mariana Common Moorhen – Assessment of Potential Effects**

Suitable wetland foraging and nesting habitat for Mariana common moorhen is present within the vicinity of the proposed project. Therefore, the Mariana common moorhen could be impacted by various components of the proposed project. The following paragraphs describe the potential effects the proposed project may have on Mariana common moorhen.

#### Loss of Forging, Roosting and Nesting Habitat

Wetlands located less than 10 meters north of the project site provide potentially suitable foraging, roosting and nesting habitat for Mariana common moorhen. The proposed project will not result in the direct loss or direct impacts to wetland habitat. Wetlands will be designated as Environmentally Sensitive Areas where no

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10 Department of Agriculture, Division of Aquatic and Wildlife Resources, Guam (DAWR). 2004. Guam Sea Turtle Recovery Annual Progress Report - March 1, 2004 through August 31, 2004. 9 pp.

11 Grimm, G. and J. Farley. 2008. Sea Turtle Nesting Activity on Navy Lands, Guam, 2007 – 2008. U.S. Navy, NAVFAC Marianas Environmental, Guam. November 2008. 6 pp.

construction activities, equipment, or personnel are allowed. Wetland habitat north of the project site could be degraded or temporarily impacted by various activities associated with the proposed project. Grading and excavating would be the primary activities that could contribute to the degradation or temporary impacts to wetland habitat. The release of sediment into Ajayan River could occur as the existing abutment walls are demolished and removed, soil behind the existing abutment walls is removed, and new grouted riprap is installed. The sediment release into the Ajayan River could migrate upstream (counter the primary direction of flow) to the wetlands. However, BMPs have been developed to avoid and minimize impacts to Mariana common moorhen habitat as a result of soil erosion and sedimentation of wetlands. A detailed list of the BMPs that would be implemented for the proposed project is provided in the Avoidance and Minimization Measures section of this document. Based on this information, it has been determined that the loss of potential foraging habitat due to the release of sediment would be discountable and would have insignificant effects on the Mariana common moorhen.

#### Increased Exposure to Human Activity, Construction Noise and Light

During construction, there would be an increased presence of human activity, construction noise and light. The Mariana common moorhen is known to be wary and to be closely associated with cover provided by edge vegetation. Potential impacts to moorhen from the increased presence of human activity, noise and light would be behavioral disturbance including avoidance of the area and temporary abandonment of nesting, roosting and feeding sites. BMPs have been developed to avoid and/or minimize the potential impacts to Mariana common moorhen from human and construction activity. Some of the BMPs that would be implemented for the proposed project include performing daily surveys, prior to the commencement of work, to insure moorhen are not within the work zone; work stoppage upon observing moorhen within the proposed project area, allowing it to leave on its own; limiting activity beyond the work zone; avoiding night work to the extent practical; minimizing vegetation clearing; performing focused bird surveys prior to vegetation clearing; and avoidance of wetland areas. A detailed list of the BMPs that would be implemented for the proposed project is provided in the Avoidance and Minimization Measures section of this document. Based on the information, it has been determined that the exposure to increased human and construction activity would be discountable and would have insignificant effects on the Mariana common moorhen.

#### **Mariana Fruit Bat – Assessment of Potential Effects**

The Mariana fruit bat is not anticipated to use habitat at or near the proposed project site. Therefore, impacts to Mariana fruit bat are not anticipated. To insure impacts do not occur BMPs have been developed as a precautionary measure. BMPs include performing daily surveys, prior to the commencement of work, to insure Mariana fruit bat are not within the work zone; work stoppage upon observing Mariana fruit bat within the proposed project area, allowing it to leave on its own; limiting activity beyond the work zone; avoiding night work to the extent practical; minimizing vegetation clearing; and performing focused bat surveys prior to vegetation clearing. A detailed list of the BMPs that would be implemented for the proposed project is provided in the Avoidance and Minimization Measures section of this document. Based on this information, it has been determined that the proposed project will have no effect on Mariana fruit bat.

#### **Pacific Tree Snail – Assessment of Potential Effects**

Suitable habitat for Pacific tree snail is present within the vicinity of the proposed project. Vegetation clearing and grading for the proposed project could affect Pacific tree snail and tree snail habitat. However, BMPs have been developed to avoid and minimize impacts to Pacific tree snail and tree snail habitat. BMPs include performing daily surveys, prior to the commencement of work, to insure Pacific tree snail are not within the work zone; work stoppage upon observing Pacific tree snail within the proposed project area, allowing it to leave on its own; limiting activity beyond the work zone; minimizing vegetation clearing; performing focused bat surveys prior to vegetation clearing; and restoration of disturbed areas with native plant as soon as possible. Based on this information, it has been determined that the proposed project would have insignificant effects on Pacific tree snail.

## **Green Sea Turtle and Hawksbill Sea Turtle – Assessment of Potential Effects**

Foraging habitat for the green sea turtle and hawksbill sea turtle occurs within the vicinity of the proposed project. While known turtle nesting areas are not present at the project site and turtle nesting is not anticipated, there is potentially suitable nesting habitat in the vicinity of the project area. Therefore, the green sea turtle and hawksbill sea turtle could be impacted by various components of the proposed project. The following paragraphs describe the potential effects the proposed project may have on green sea turtle and the hawksbill sea turtle.

### Direct Physical Impact

The proposed project includes the use of heavy equipment such as cranes, saws, backhoes and jackhammers to demolish the existing bridge and construct the replacement bridge. These activities have the potential to directly strike green and hawksbill sea turtles should the animals be present during the placement of riprap or if debris were to accidentally fall into the water. Potential injuries and their severity would depend on the animal's proximity to the falling material or debris, but may include cuts, bruises, broken bones, cracked or crushed carapaces, and amputations, any of which could result in the animal's death.

Marine animals will likely avoid the project areas on their own due to the on-going activities. In addition, BMPs have been developed to avoid and/or minimize the potential impacts to sea turtles. Some of the BMPs that would be implemented for the proposed project include performing daily surveys, prior to the commencement of work, to insure sea turtles are not within the work zone; work stoppage upon observing a sea turtle within the proposed project area, allowing it to leave on its own; limiting activity beyond the work zone; insuring all objects that are to be placed in the river, are lowered to the bottom in a controlled manner; and use of catchment platforms and protective netting to keep debris from falling into the water. A detailed list of the BMPs that would be implemented for the proposed project is provided in the Avoidance and Minimization Measures section of this document. Based on the information, it has been determined that direct physical impact to sea turtles is extremely unlikely and would be discountable.

### Loss of Foraging Habitat

The Achang Reef Flat Marine Preserve provides foraging habitat for the green sea turtle and the hawksbill sea turtle. This foraging habitat could be degraded or temporarily impacted by various activities associated with the proposed project. Grading and excavating would be the primary activities that could potentially contribute to the degradation or temporary loss of foraging habitat. The release of sediment into Achang Reef Flat Marine Preserve could occur as the existing abutment walls are demolished and removed, soil behind the existing abutment walls is removed, and new grouted riprap is installed. The sediment released into the Ajayan River could migrate downstream to the Achang Reef Flat Marine Preserve where it would likely disperse and settle on the ocean floor and/or remain suspended in the ocean water. This increase in suspended sediment and sediment deposition within Achang Reef Flat Marine Preserve could damage and/or kill potential food sources for the sea turtles, such as seagrass beds and coral reef communities. Temporary increases in turbidity may also impact habitat quality for foraging sea turtles. However, BMPs have been developed to avoid and minimize impacts to sea turtle foraging habitat as a result of soil erosion, turbidity and/or sediment deposition within the Ajayan River, Ajayan Bay and Achang Reef Flat Marine Preserve. A detailed list of the BMPs that would be implemented for the proposed project is provided in the Avoidance and Minimization Measures section of this document. Based on this information, it has been determined that the loss of potential foraging habitat due to the release of sediment would be discountable and would have insignificant effects on the green and hawksbill sea turtle.

### Exposure to Elevated Noise Levels

Several studies have shown that various anthropogenic activities can generate underwater noise levels that can be detected by a marine species within the range of the particular source. Depending on the species and underwater noise frequency, the underwater noise frequency can induce behavioral responses that are potentially damaging to that species. Construction projects adjacent to, and within the ocean is one of the many activities that can produce underwater sound to a level that it causes an adverse impact upon a marine species. Pile driving, such as that employed for this project, is often the construction activity that produces underwater noise frequencies that are potentially harmful to marine species.

Sea turtle hearing research is limited, but available information about sea turtle sensory biology suggests that they are low frequency specialists, with green sea turtles thought to be most acoustically sensitive between 200 and 700 hertz (Hz)<sup>12</sup>. Because the hearing range of green sea turtles overlaps with the expected frequency range of the pile driving signals, NMFS considers it likely that green sea turtles can hear and respond to pile driving noise. Currently, no acoustic thresholds have been established for sea turtles. However, existing research into sea turtle sensory biology suggests that sea turtles are less acoustically sensitive than cetaceans, relying more heavily on visual cues, rather than auditory input<sup>13&14</sup>. Therefore, application of the marine mammal thresholds would be conservative for sea turtles.

Underwater sound pressure levels are often measured and described in terms of the logarithmic decibel (dB) referenced to a baseline of 1 micropascal (re 1  $\mu$ Pa). To assess the potential impacts of an underwater sound on marine resources, NMFS often assesses impacts based on root-mean-square (dB<sub>rms</sub>) of an acoustic pulse. This is the portion of the pulse that contains 90% of the sound pressure.

The current acoustic thresholds used by NMFS for marine mammal Permanent Threshold Shift due to exposure to in-water sounds are  $\geq 180$  dB and  $\geq 190$  dB for cetaceans and pinnipeds, respectively. Exposure to impulsive in-water sounds at  $\geq 160$  dB is the threshold onset of Temporary Threshold Shift and behavioral disturbance for all marine mammals. NMFS considers these to be the thresholds for the onset of adverse effects due to acoustic exposures<sup>15</sup>.

An underwater noise analysis was not conducted for the proposed project. Site-specific noise measurements for pile-driving at the Ajayan River are not available. California Department of Transportation's (CALTRANS)

Compendium of Pile Driving Sound Data (Compendium)<sup>16</sup> was referenced for reporting sound levels that would closely approximate sound levels for similar piles, driven in a similar manner as this action.

The proposed construction of the Ajayan Bridge would not require in-water pile driving. A total of twenty-four octagonal 16.5-inch-diameter concrete piles would be installed on the shoreline above the MHW line. Piles would be installed with an impact hammer, which would generate impulsive in-water sounds.

The CALTRANS Compendium reports measured levels for the driving of 16-inch-diameter concrete piles in water and 24-inch-diameter octagonal piles on land. Impact driving of 16-inch-diameter concrete piles in a water depth of 10 meters measured 173 dB<sub>rms</sub> at a distance of 10 meters from the source. Impact driving of 24-inch-diameter octagonal piles on land measured 181 dB<sub>rms</sub> at a distance of 10 meters from the source<sup>9</sup>.

In the absence of site specific transmission loss data, the practical spreading loss equation,  $RL = SL - 15\text{Log}R$ , is often used to estimate the RL for actions in shallow nearshore marine waters (RL = received level; SL = source level; and R = range in meters (m)). This equation and the received levels reported in the Compendium as measured at 10 meters for the 24-inch-diameter octagonal concrete piles on land and 10 meters for 16-inch-diameter concrete pile in water was used to calculate the following source levels and isopleth ranges (Table 1).

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12 Ridgway, S. H., E.G. Wever, J.G. McCormick, J. Palin, and J.H. Anderson. 1969. Hearing in the Giant Sea Turtle, *Chelonia mydas*. PNAS, 64, 884-890.

13 Hazel, J., I.R. Lawler, H. Marsh, and S. Robson. 2007. Vessel speed increases collision risk for the green turtle *Chelonia mydas*. Endangered Species Research 3: 105-113.

14 Ridgway, S. H., E.G. Wever, J.G. McCormick, J. Palin, and J.H. Anderson. 1969. Hearing in the Giant Sea Turtle, *Chelonia mydas*. PNAS, 64, 884-890.

15 National Marine Fisheries Service, Pacific Islands Region, Protected Resources Division. 2014. ESA – Section 7 Consultation, Biological Opinion, United States Department of the Navy, X-Ray Wharf Improvements, Naval Base Guam – NMFS File No. (PCTS): PRI-2013-9309, PIRO Reference No.: I-PI-13-1105-LVA

16 California Department of Transportation (CALTRANS), 2007. Compendium of Pile Driving Sound Data. Prepared by Illinworth & Rodkin, 505 Petaluma Blvd. South, Petaluma, CA 94952. September 27, 2007.

<b>Piling</b>	<b>Driver</b>	<b>Water Depth</b>	<b>Source Level</b>	<b>Range to 180 dB<sub>rms</sub></b>	<b>Range to 160 dB<sub>rms</sub></b>
24" Concrete	Impact	Land	196	12 meters	251 meters
16" Concrete	Impact	10 meters	188	3 meters	74 meters

The proposed 16.5-inch-diameter concrete piles for the Ajayan Bridge replacement would generate lower sound levels in-water and smaller effect threshold isopleths than the similar pile driving actions presented in Table 1. Considering the relatively low number of sea turtles expected to occur within the project area, relatively minimal proposed pile driving, expected short-range of low sound levels that can cause behavioral disturbance, and 50-yard (46-meter) shut-down safety range, it is unlikely any sea turtles would be exposed to adverse sound levels produced by pile driving. Based on this information, it has been determined that elevated noise levels due to the pile driving activities would be discountable and would have insignificant effects on the green and hawksbill sea turtles.

#### Construction Lighting Impacts

Sea turtle hatchlings emerge from their nest at night and haul themselves towards the ocean where they will spend their entire life. Upon emerging from the nest, hatchlings typically orient themselves toward the brightest direction, which on natural, undeveloped beaches is commonly toward the open horizon of the ocean. However, on developed beaches, the brightest direction is often away from the ocean and toward the lighted structures located along the nesting beach habitat. Therefore, sea turtle hatchlings are often disoriented and unable to find the ocean, which often leads to high mortality rates<sup>17</sup>. In addition, artificial lighting may deter the adult female sea turtle from emerging from the ocean to excavate a nest and lay her clutch of eggs.

Although unlikely, construction of the proposed project may require work after daylight hours; thereby, facilitating the need to use artificial lighting to illuminate the proposed project area. Therefore, the use of artificial lighting after daylight hours could contribute to disorienting sea turtle hatchlings emerging from their nest and/or discourage an adult female sea turtle from emerging from the ocean to excavate a nest and deposit her clutch of eggs. However, if work is required after daylight hours, the potential impact to sea turtles due to artificial lighting would be minimized by the use of sea turtle friendly lighting; thereby, reducing emitted light from the proposed project area. Based on this information, it has been determined that the exposure to construction lighting would be discountable and would have insignificant effects on the green and hawksbill sea turtles.

#### Increased Exposure to Human Interaction

During project construction, there would be an increased presence of human activity that may result in higher incidents of sea turtle and human interaction. The impacts to sea turtles from human interaction would primarily be associated with behavioral changes in the sea turtles that may include avoiding potentially suitable foraging habitat within the Achang Reef Flat Marine Preserve, abrupt body movements while swimming that could cause injury to the sea turtle and may even result in prolonged inactivity at the bottom of the ocean floor<sup>4</sup>. It is unlikely that the increased human presence at the proposed project site would impact sea turtle nesting behavior given that the closest known nesting site is located approximately one mile (1.6 kilometers) to the northeast of the proposed project site. However, BMPs have been developed to avoid and/or minimize the potential impacts to sea turtles from human interaction. Some of the BMPs that would be implemented for the proposed project include performing daily surveys, prior to the commencement of work, to insure sea turtles are not within the work zone; work stoppage upon observing a sea turtle within the proposed project area, allowing it to leave on its own; and limiting activity beyond the work zone. A detailed list of the BMPs that would be implemented for the proposed project is provided in the Avoidance and

17 National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1998. Recovery Plan for U.S. Pacific Population of the Green Turtle (*Chelonia mydas*). National Marine Fisheries Service. Silver Spring, MD.

Minimization Measures section of this document. Based on the information, it has been determined that the exposure to increased human activity would be discountable and would have insignificant effects on the green and hawksbill sea turtles.

#### Exposure to Elevated Turbidity

Given that sea turtles breathe air instead of water, increased turbidity should not adversely affect their respiration or other biological functions. Although these animals may be found in turbid waters, it is likely that they may avoid dense turbidity plumes in favor of clearer water. However, BMPs have been developed to avoid and minimize elevated turbidity including use of turbidity curtains and erosion and sediment controls. Based on this information, it has been determined that exposure to any plumes of elevated turbidity related to actions of the project will be non-injurious and will result in insignificant effects to green and hawksbill sea turtles.

#### Exposure to Waste and Discharges

Construction wastes may include plastic trash and bags that may be ingested and cause digestive blockage or suffocation. Large plastic trash and discarded sections of ropes and lines may entangle marine life. Equipment spills and discharges could include hydrocarbon-based chemicals such as fuel oils, gasoline, lubricants, hydraulic fluids and other toxicants, which could expose protected species to toxic chemicals. Depending on the chemicals and their concentration, exposure could result in a range of effects, from avoidance of an area to mortality. Local and federal regulations prohibit the intentional discharge of toxic wastes and plastics into the marine environment. In addition, BMPs have been developed to prevent the introduction of wastes and toxicants in the marine environment. Some of the BMPs that would be implemented for the proposed project include use of catchment platforms and protective netting to keep debris from falling into the water; off-site fueling to the extent feasible; storing and staging of construction materials away from the shoreline and river bank; inspection of equipment; readily available spill kits and absorbent pads; and immediate removal of construction debris from the site. A detailed list of the BMPs that would be implemented for the proposed project is provided in the Avoidance and Minimization Measures section of this document. Based on the information, it has been determined that discharges of wastes and toxicants are unlikely. Should a discharge occur appropriate measures would be in place to contain and clean-up the spill. Therefore, based on this information, it has been determined that the exposure to wastes and discharges would be discountable and would have insignificant effects on the green and hawksbill sea turtles.

#### **Locally Endangered Native Skinks – Assessment of Potential Effects**

Suitable habitat for native skinks is present within the vicinity of the proposed project. Vegetation clearing and grading for the proposed project could affect native skinks and skink habitat. However, BMPs have been developed to avoid and minimize impacts to native skinks and skink habitat. BMPs include performing daily surveys, prior to the commencement of work, to insure native skinks are not within the work zone; work stoppage upon observing native skink within the proposed project area, allowing it to leave on its own; limiting activity beyond the work zone; minimizing vegetation clearing; performing focused skink surveys prior to vegetation clearing; and restoration of disturbed areas with native plant as soon as possible. Based on this information, it has been determined that the proposed project would have insignificant effects on locally endangered native skinks.

#### **Avoidance and Minimization Measures**

To avoid and minimize the potential impacts the proposed project may have upon the federally threatened green sea turtle, federally endangered hawksbill sea turtle and other biological and environmental resource, the FHWA and the DPW have developed numerous BMPs in that would be implemented during the life of the proposed project. The BMPs to be implemented and maintained for the proposed project would include, but not limited to, the following:

- The contractor shall remain vigilant for the presence of federally and locally protected species (e.g., Endangered Species Act [ESA], Marine Mammal Protection Act [MMPA], Migratory Bird Treaty Act [MBTA], Guam Comprehensive Wildlife Conservation Strategy) during construction. A

qualified biologist will survey the areas adjacent to the proposed action for federally and locally protected species prior to the start of work each day and prior to resumption of work following any break of more than 30 minutes.

- Should protected species be discovered within 50 yards of the proposed work activities with the potential to impact or disturb species shall be postponed or halted. Work shall only begin/resume after the animals have voluntarily departed the area.
- Special attention shall be given to verify that no protected marine animals are in the area where equipment or materials are expected to contact the substrate before that equipment may enter the water.
- All objects that are to be placed in the river, such as turbidity curtains, riprap, and excavator bucket, shall be lowered to the bottom in a controlled manner. This can include the use of cranes, winches, or other equipment that affect positive control over the rate of descent to minimize turbidity potential.
- No marine vessels, boats, mooring lines or marker buoys shall be utilized.
- Turbidity curtains and tethers shall be minimum length necessary, and shall remain deployed only as long as needed to properly accomplish the required task.
- Deployment sites shall be devoid of live corals, seagrass beds, or other significant resources.
- Work shall be performed during daylight hours to avoid disorienting nesting sea turtles due to nighttime construction lighting. If work is required after daylight working hours, sea-turtle-friendly lighting shall be used to reduce the brightness of the emitted light.
- From September through April, migratory birds protected under the Migratory Bird Treaty Act of 1917, may use the project site as a foraging, nesting, and resting ground. The protected species must not be harmed or harassed.
- Vegetation (habitat) clearing shall be minimized to the maximum extent possible.
- The contractor must consult with the Guam Division of Aquatic and Wildlife Resources at least 1 week prior to any vegetation removal action.
- Focused bird, tree snail, bat and native skink surveys shall be performed prior to vegetation removal.
- Activities that result in sediment/pollutant discharges shall cease during the 21 day spawning moratorium for the primary hard coral spawning event each year. For the 2014 scleractinian coral spawning period, these activities shall stop by July 11, 2014 and activities may resume on August 1, 2014.
- The Ajayan Bridge is located in the Achang Reef Flat Marine Protected Area (MPA). No take of marine organisms is allowed within this MPA. Any take to include killing, damaging, or wounding of marine organisms is a violation of local natural resource laws.
- Wetlands will be designated as Environmentally Sensitive Areas where no construction activities, equipment, or personnel are allowed.
- Appropriate materials to contain and clean potential spills shall be stored at the work site and be readily available. All project-related materials and equipment placed in the water shall be free of pollutants.

- The contractor shall perform daily pre-work equipment inspections for cleanliness and leaks. Heavy equipment operations shall be postponed or halted should a leak be detected, and shall not proceed until the leak is repaired and equipment cleaned.
- Off-site fueling sites shall be used to the maximum extent practical. Should fueling of project-related vehicles or equipment need to occur on-site a designated fueling area will be established at least 50 feet from the shoreline, river bank and wetlands. Project personnel shall be trained on proper fueling and fuel spill cleanup procedures.
- Stockpile, staging, and material storage areas shall be kept at least 50 feet from the shoreline, river bank, and wetlands.
- The contractor shall take appropriate precautions in advance of predicted typhoon events to prevent material losses during surge or flood events, such as relocating materials and equipment to be at least 50 feet from the shoreline and river bank.
- Hazardous materials and petroleum products shall be transported, used, and stored on-site in a manner to prevent contamination of soils and water.
- Spill kits including absorbent pads and other materials shall be readily available on-site.
- Turbidity and siltation from project-related work shall be minimized and contained through the appropriate use of erosion-control practices and effective silt containment devices (e.g., silt fencing and turbidity curtains), and the curtailment of work during adverse weather and tidal/flow conditions.
- An Environmental Protection Plan, Erosion Control Plan, Storm Water Pollution Prevention Plan, litter-control plan, Hazard Analysis and Critical Control Point Plan, and project-specific plans shall be prepared, approved by appropriate regulatory agencies, and implemented.
- Solid and sanitary waste disposal procedures and facilities shall be implemented.
- Erosion-control device(s) shall be employed at the job site to prevent debris and soil from entering the river. Device(s) must be secured and able to withstand heavy rains and winds.
- Catchment platforms and protective netting shall be installed under the bridge to keep debris from falling into the water.
- Construction debris must be removed immediately and not stored at the job site. Debris includes excavated soil, cement material, piping, and asphalt.
- Any material or debris removed from the aquatic environment shall be disposed of at upland sites in accordance with applicable laws and regulations.
- Dust-control devices or methodologies (wetting) must be employed at the job site during construction.
- Absorbent pads shall be readily available at the job site during heavy equipment operations, and equipment must be inspected for leaks prior to use.
- Work shall be conducted below the mean high water line during the dry season and low tides when feasible.

- All heavy equipment shall be kept out of the stream bed and disturbance of the existing stream bed shall be avoided.
- Impacts to strand vegetation along the shoreline shall be avoided to minimize beach erosion. Vegetation shall be replaced as soon as possible along both stream banks and shorelines.
- “Soft” approaches in lieu of impervious “hard” stabilization and modifications shall be used whenever possible to slow stream flow and allow for water infiltration.
- Hydrodynamics and sedimentation patterns shall be properly modeled and designed to avoid erosion to adjacent properties when “hard” stabilization is deemed necessary.
- The Nypa palm community upstream of the bridge shall be avoided.
- River corridor access shall be maintained for aquatic species.
- Disturbed areas will be restored with native plants as soon as possible.
- Invasive species controls shall be maintained to ensure that all materials (human-created and natural) transported from off-site are free of such species (e.g., brown tree snake, rhino beetle, invasive plants).

We trust that we have provided you with the necessary information to evaluate the proposed project and potential effects to species protected under Guam Endangered Species Regulation No. 9. We appreciate any feedback or comments you may have regarding the project, avoidance and minimization measures, and potential effects to protected resources.

Should you require additional information, feel free to contact Joaquin Blaz at (671) 649-3128.

Sincerely,

  
**Carl V. Dominguez**  
**Director**

Enclosure:      1 – Project Location Map  
                     2 – Photo Log  
                     3 – Proposed Geotechnical Soil Boring Locations  
                     4 – Bridge Profile  
                     5 – Traffic Control Plans  
                     6 – BMP Drawings  
                     7 – Achang Reef Flat Marine Preserve  
                     8 – January 2013 Response from DAWR  
                     9 – Flora and Fauna Surveys for the Ajayan Bridge Replacement Project

cc:      Richelle M. Takara, FHWA (via email)  
            Joaquin Blaz, DPW (via email)  
            Brent Tibbatts, DAWR (via email)  
            James Michler, Parsons Brinckerhoff (via email)  
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TAKARA/IX

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G.2 Government of Guam, Bureau of Statistics and Plans, Coastal Management Program

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May 14, 2014

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**Subject: Ajayan Bridge Replacement Project, Guam Coastal Management Program**

Dear Ms. Evangeline Lujan:

The U.S. Department of Transportation, Federal Highway Administration (FHWA), in coordination with the Guam Department of Public Works (DPW), proposes to replace the existing Ajayan River Bridge located on Route 4, on the boundary between Merizo and Inarajan. A Categorical Exclusion document for compliance with the National Environmental Policy Act (NEPA) is being prepared for the Route 4 Ajayan Bridge Replacement Project (project).

On behalf of FHWA and DPW, we are contacting you to initiate project scoping and solicit your comments regarding issues or concerns relevant to your agency's programs and policies.

#### **Ajayan Bridge Existing Condition**

The Ajayan Bridge is located on Route 4 on the boundary between Merizo and Inarajan. The bridge provides two lanes that cross the Ajayan River just upstream of the river mouth as it enters the ocean, as shown in Enclosure 1 – Project Location Map.

The existing single-span cast-in-place concrete box girder bridge was constructed in 1968, with a span length of approximately 76.2 feet and a skew of 40 degrees. Abutments are founded on concrete piles; the deck has an asphalt concrete wearing surface. The most recent bridge inspection report, dated May 27, 2004, noted that the substructure and channel are rated in serious condition. The damage noted includes cracking and differential movement of substructure units and significant scour at abutments, as shown in Enclosure 2 – Photo Log.

#### **Project Description**

The existing bridge will be demolished and replaced with a new 40-foot-wide by 105-foot-long bridge. The proposed improvements include two 12-foot-wide lanes and two 8-foot-wide paved shoulders. Roadway alignment and grade will match the existing at the point of tie-in.

To accommodate traffic while the new bridge is being constructed, the bridge will be demolished in two phases, demolishing one side (longitudinally) of the bridge at a time. This will allow two-way traffic (one lane, controlled by traffic lights) to use the bridge during demolition and construction.

The project will entail the demolition and removal of the existing bridge structure and existing pile caps. The existing piles below the waterline will be cut and capped at the mudline, but left in-place. This will provide for

minimal disturbance of the aquatic ecosystem. Roadway work within the project limits will include removal of the existing pavement, full-depth pavement replacement, and replacement of the guardrails. The proposed action will also include geotechnical sampling, testing, and analysis. As shown in Enclosure 3 – Proposed Geotechnical Soil Boring Locations, soil borings for bridge foundations will be taken at two locations, one at each proposed substructure unit, to a depth of at least 100 feet or at least 10 feet into competent bedrock, whichever is shallower. Additionally, two shallow borings to a depth of 15 feet will be taken within the roadway approach area.

## **Demolition and Construction Methods**

### Demolition

Bridge demolition will include removal of the existing bridge deck, box beam, abutments, wing walls, guardrails, and parapet. The existing bridge is approximately 29.6 feet wide and will be demolished in two phases to allow for one lane to remain open for traffic. Phase 1 will include saw-cutting the westbound portion of the existing bridge and removing it by crane. Phase 2 will include the same actions to the eastbound portion of the existing bridge. Before demolition and removal, a temporary concrete barrier will be installed on the existing bridge, and existing utilities will be temporarily relocated to the opposite portion of the bridge during each phase.

Demolition of the existing abutment walls will be accomplished by use of jackhammers and/or hoe rams, and removed via mechanical equipment such as a backhoe. The existing bridge abutments will be demolished and the existing piles will be cut down to the river bed. The soil between the old abutment and new abutment will be excavated, and 48-inch-thick grouted riprap will be placed on a gradual slope from the new abutment to the remaining old pilings, as shown in Enclosure 4 – Bridge Profile. A combined total of approximately 540 cubic yards of soil and concrete abutment wall material will be excavated from below the mean high water (MHW) line of the Ajayan River. The combined total linear disturbance to the stream channel from the excavation of the soil and concrete abutment wall material will be approximately 407 linear feet.

### Construction

Construction of the new bridge will also be performed in two phases so that two-way signal-controlled traffic can be maintained in one lane during construction. Phase 1 will include demolition of the existing westbound portion of the bridge and construction of the new westbound portion of the bridge. During Phase 1, utilities and two-way signal-controlled traffic will be temporarily relocated to the eastbound portion of the existing bridge. Phase 2 will include demolition of the existing eastbound portion of the bridge and construction of the new eastbound portion of the bridge. During Phase 2, utilities will be permanently installed in the westbound portion of the new bridge, and two-way signal-controlled traffic will be temporarily relocated to the westbound portion of the new bridge. Work areas for Phase 1 and Phase 2 are shown in Enclosure 5 – Traffic Control Plans.

New bridge foundations will be constructed inland, or behind, the existing abutments to minimize disturbance to the river channel. The proposed abutments will be set back from the existing abutments. The soil and grouted riprap between the remaining existing piles and the new abutment will be sloped back at a 3H:1V ratio. The two new abutments will be constructed at the top of the slope and supported by twelve piles (per abutment), for a combined total of twenty-four new octagonal 16.5-inch-diameter concrete piles (100 tons per pile). The new abutments and abutment piles will be constructed above the MHW line.

Approximately 947 cubic yards of grouted stone riprap will be placed along the abutment walls, below the MHW line, to protect the abutment from erosion caused by waves. The riprap (fill material) will be placed along approximately 401 linear feet of stream channel. The riprap will be placed within the excavation footprint and will not impact additional areas of the stream channel.

### Best Management Practices

Best management practices (BMPs) will include catchment platforms and protective netting, silt screen fences, and turbidity curtains. Catchment platforms and protective netting will be installed under the bridge to keep debris from falling into the water. Silt screen fences will be placed at the slope toe around the river edges to prevent erosion and rubbish from going into the water. Turbidity curtains will be installed at both river banks surrounding the work areas to prevent the spread of silt and sediment into the river and bay (see Enclosure 6 – BMP Drawings).

### **Natural Environments**

The proposed project is located within the southern end of Guam, which is characterized by hilly volcanic slopes descending from approximately 800 feet in elevation to sea level over distances of less than 2.5 miles. The project site is situated between the Inarajan and Manell watersheds. The Ajayan Bridge is situated on the southern end of the Ajayan River, adjacent to the Ajayan Bay discharge point. Flora and fauna surveys of the proposed project area were conducted by SWCA Environmental Consultants (SWCA) on November 6 and 7, 2013 (Enclosure 7 – Flora and Fauna Surveys for the Ajayan Bridge Replacement Project). During these surveys, emphasis was placed on identifying special-status species. The following paragraphs describe the existing terrestrial and aquatic environments that occur within the proposed project area as reported by SWCA and Guam Department of Agriculture, Division of Aquatic and Wildlife Resources (DAWR).

### Terrestrial Ecology

Forest surrounding the project area consists mostly of secondary thicket/scrub forest with some ravine forest. Areas of forested palustrine wetlands are located along the east and west banks of the Ajayan River. Several typhoons that occurred between the 1970s and 1990s changed the vegetation in the area dramatically. Site visits conducted by Guam DAWR staff in February and March 2013 found that pago (*Hibiscus tiliaceus*) and tangantangan (*Leucaena leucocephala*) were the two common species in the project area.

During flora surveys performed by SWCA on November 6 and 7, 2013, a total of 19 plants were identified to either genera or species. The seven native plants documented consisted of five trees (pago, *Pandanus tectorius*, *Bougainvillea glabra*, *Callicarpa candicans*, and *Morinda citrifolia*), one fern (*Polypodium scolopendria*), and one grass (*Saccharum spontaneum*). The non-native plants documented were puguá (*Areca catechu*), coconut trees (*Cocos nucifera*), beggar's tick (*Bidens alba*), Siam weed (*Chromolaena odorata*), mile-a-minute vine (*Mikania scandens*), daok (*Calophyllum inophyllum*), papaya (*Carica papaya*), tangantangan, kamachile (*Pithecellobium dulce*), and *Musa* sp.

### Shoreline Ecology

The project area is located at the mouth of the Ajayan River as it discharges into Achang Reef Flat. The shoreline vegetation is composed primarily of coconut trees, pago, and tangantangan.

Although not located within the boundaries of the project area, a small *Nypa* palm (*Nypa fruticans*) (also referred to as "Nipa") community was identified approximately 10 meters upstream of the Ajayan River. This species is a wetland obligate and grows in brackish marshes.

### Aquatic Ecology

The Ajayan River flows south and discharges at the Ajayan Bay. The Ajayan Bay includes the eastern portion of the Achang Reef Flat Marine Preserve, as shown in Enclosure 8 – Achang Reef Flat Marine Preserve. The Ajayan River channel cuts completely through the reef flat at Ajayan Bay. The reef flat consists of inner and outer reef flats that are exposed at low tide. Mangroves and sea grass beds are present in the vicinity of the project site.

According to the University of Guam Marine Laboratory's Guam Coastal Atlas<sup>1</sup> the benthic habitat of the river channel is composed of "sand, uncolonized 90% to 100%", extending from inland waters to 500 meters offshore. The benthic habitat to the east of the channel is composed of "spur and groove, coral 10% to <50%" near the shore, and "pavement, turf 50% to <90%" after approximately 100 meters offshore. The benthic habitat to the west of the channel is composed of "spur and groove, coral 50% to <90%" near the shore, and "pavement, coral 10% to <50%" after approximately 50 meters offshore.

The Achang Reef Flat supports primarily hard corals. Only two soft coral species have been identified by the University of Guam Marine Lab during monitoring of the site.

Achang Reef Flat is classified as M-1, Excellent.<sup>2</sup> Waters in this category are suitable for whole-body contact and recreation. These waters are also needed for research and to ensure the preservation and protection of marine life, including coral, reef-dwelling organisms, fish, and related resources, and aesthetic enjoyment. The surface waters of the Ajayan River are classified as S-3, Low. Waters in this category are used primarily for commercial, agriculture, or industrial activity. Aesthetic enjoyment and recreational body contact are limited. Maintenance of aquatic life is also limited.

### **Agency Coordination**

Other Guam and federal agencies have been contacted for consultation. Below is a synopsis of the other agency consultations for this project to-date.

Site specific species and habitat information has been provided by Guam Department of Agriculture, Division of Aquatic and Wildlife Resources (DAWR), U.S. Fish and Wildlife Service (USWFS), and National Marine Fisheries Service (NMFS). As requested by the various agencies, flora and fauna surveys were completed for this project. Additional BMPs and avoidance and minimization measure will be implemented based on recommendations from agency consultation. Determinations of species and habitat effects will be made in coordination with resource agencies.

Consultation with the Government of Guam, State Historic Preservation Office (SHPO) has been initiated and SHPO has accepted the Final Archaeological Monitoring and Data Recovery Plan for this project.

The U.S. Army Corps of Engineers (ACOE) has determined tidal waters of Ajayan Bay of the Pacific Ocean are navigable water of the U.S. under ACOE jurisdiction. The ACOE has confirmed the discharge of dredged and fill material associated with this bridge replacement project will require authorization from the ACOE, under Section 404 of the Clean Water Act.

The U.S. Coast Guard (USCG) has confirmed the Ajayan River is tidally influenced and subject to USCG jurisdiction. The USCG had determined the project location is in the USCG advance approval category for permitting the construction of the bridges, pursuant to 33 CFR 115.70. Therefore, a specific USCG bridge permit will not be required for this project.

Consultation has also been initiated with Government of Guam, Department of Land Management (DLM) and the Guam Seashore Protection Commission (within DLM).

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<sup>1</sup> University of Guam Marine Laboratory's Guam Coastal Atlas. Online at [www.guammarinelab.com/coastal.atlas/htm/Maps.htm](http://www.guammarinelab.com/coastal.atlas/htm/Maps.htm).

<sup>2</sup> Guam Environmental Protection Agency. 2001. Guam Water Quality Standard. 2001 Revision.

Upon completion of the Categorical Exclusion an Assessment of Federal Consistency with the Coastal Zone Management Act will be prepared and submitted to your office for concurrence. We respectfully request your review of the project information provided and comment on any Coastal Management Program objectives and policies that may affect this undertaking. Should you have any questions or need additional information please contact George Redpath at [george.redpath@aecom.com](mailto:george.redpath@aecom.com) or at (808) 954-4525.

Sincerely,



George Redpath  
Senior Project Manager

Enclosures:      1 – Project Location Map  
                         2 – Photo Log  
                         3 – Proposed Geotechnical Soil Boring Locations  
                         4 – Bridge Profile  
                         5 – Traffic Control Plans  
                         6 – BMP Drawings  
                         7 – Flora and Fauna Surveys for the Ajayan Bridge Replacement Project  
                         8 – Achang Reef Flat Marine Preserve

cc:      Joanne M.S. Brown, DPW (via email)  
            Joaquin Blaz, DPW (via email)  
            Jeff Wilson, Parsons Brinckerhoff (via email)  
            Nora Camacho, Parsons Brinckerhoff (via email)  
            Kosal Krishnan, AECOM (via email)  
            Nemencio Macario, N.C. Macario (via email)

**Eddie Baza Calvo**  
Governor of Guam



SAGAN PLANU SIIIA YAN EMFOTMASION  
P.O. Box 2950 Hagåtña, Guam 96932  
Tel: (671) 472-4201/3 Fax: (671) 477-1812



**Lorilee T. Crisostomo**  
Director

**Ray Tenorio**  
Lieutenant Governor

MAY 28 2014

Mr. George Redpath  
AECOM Senior Project Manager  
1001 Bishop Street, Suite 1600  
Honolulu, HI 96813 USA

Hafa Adai Mr. Redpath:

This is in response to the scoping letter sent to the Bureau of Statistics and Plans by AECOM Environmental Planner, Courtney Krug, on your behalf, soliciting comments regarding the proposed Ajayan Bridge Replacement Project located on Route 4, on the boundary between Merizo and Inarajan, Guam.

As mentioned on your letter, a Categorical Exclusion document is being prepared for compliance with the National Environmental Policy Act (NEPA) for this project. However, please note that the NEPA document does not necessarily fulfill the requirements of the Coastal Zone Management Act, *15 CFR Part 930.37*. The submission of a corresponding Federal Consistency Assessment and Certification is needed for the project, certifying that the proposed Department of Public Works project is consistent with the federally approved development and resource policies of the Guam Coastal Management Program (GCMP). Please refer to the Bureau's *Procedures Guide for Achieving Consistency with the Guam Coastal Management Program*, under Category II- Activities Requiring Federal License or Permit, pages 13-16. The Guidebook can be accessed at the BSP Website: <http://www.bsp.guam.gov>.

Impacts of the projects on cultural, terrestrial and marine resources, as well as, endangered species must be assessed and/or evaluated. We suggest that the Department of Land Management, the Guam Department of Parks and Recreation's Historic Preservation Office, as well as, the Guam Environmental Protection Agency and the Department of Agriculture's Division of Aquatic and Wildlife Resources (DAWR) be consulted to obtain corresponding permits, certifications, clearance and/or waivers required prior to starting the construction project. We believed this proposed project would also require the U.S. Department of the Army Corps of Engineers (ACOE) Permit. The copy of the certification that the proposed activity complies with and will be conducted in a manner consistent with the enforceable policies of Guam approved management program and will be conducted in a manner consistent with such program shall be submitted to the ACOE Guam Regulatory Branch Manager, who will forward a copy of the public notice to the GCMP requesting concurrence or objection. The ACOE shall not issue the permit until the BSP/GCMP concurs with the certification statement or the Secretary of Commerce determines the project to be consistent for the purposes of CZM Act or is necessary in the interest of national security.

We recommend that the reconstruction of the roads and associated drainage improvements must be in adherence with the Guam Water Quality Standards administered and enforced by the Guam Environmental Protection Agency, as well as, the Erosion and Sediment Control Regulations of the Guam and CNMI Storm Water Management Manual. Additionally, the projected future traffic volumes/congestions issues from military buildup be addressed and done in concert with GPA, GWA, GTA, Docomo Pacific, Inc. and other utility agencies in Guam. Detailed assessment of impacts on the "environment" must incorporate mitigation/monitoring measures into the road and bridge design, including:

- Landscaping, migratory bird protection, watercourse and fisheries protection measures and other environmental protection measures. If culvert replacement/extension results to potential impacts such as "Harmful Alteration, Disruption or Destruction" of fish habitat appropriate mitigation measures must be implemented, subject to Department of Agriculture's Division of Aquatic and Wildlife Resources (DAWR).
- Emergency services access during construction must be provided to the public.
- Environmental Protection Plan (EPP) must be submitted to the Guam Environmental Protection Agency (GEPA) for approval under the Clean Water Act.
- Incorporate public and agency comments received during review period into Detailed Design, where possible.
- Recommendations from experienced bridge building engineers should be solicited, to determine if the existing bridge has to be replaced along approximately the same general alignment with the existing Route 4 right-of-way. If it has been determined that the Ajayan Bridge is in the National Register of Historic Place, architectural and landscaping characteristics relevant to its historic setting, such as lighting fixtures, detailed concrete elements, and ornamental fencing must be consistent with the characteristic of the bridges and the surrounding area. Design philosophy and elements of the approach must be discussed and incorporated into the final design. Various constraints have to be addressed, including sensitive wetlands area that could tolerate only minimal impact from the bridge configuration. Maintenance of traffic must be considered in the construction of roads and bridges. It is ideal to maintain two lanes of traffic for the duration of the project. Air quality impacts will be mitigated by applying standard dust and emission control measures during construction.
- Impacts of temporary road closures can be mitigated by:
  - minimizing length of time of road closures
  - providing newspaper notices on timing and duration of closures
  - installing information signs advising drivers of "exit" interchange closures and alternative routes

The Bureau defers the review and approval of the design plans and construction specifications to the Department of Public Works Engineers and/or their duly authorized technical building consultants. All construction projects must conform and adhere to all of the required Guam environmental rules and regulations, such as: implementation of stormwater and erosion control

measures to prevent degradation of water quality. Additionally, the bridge should be designed to withstand strong currents and seismic activities capable of producing earthquakes of Richter movement based on the implementation of Public Law 30-159 provisions of the 2009 International Building Code (IBC) and the adoption of the reference codes.

The assessment of the proposed project's conformance with the GCMP objectives, policies, and applicable management network rules and regulations must be submitted as part of the review of the Federal Consistency applications, in accordance with the provisions of the Coastal Zone Management Act (CZMA) Federal Consistency Regulations, 15 CFR Part 930.

Finally, please be reminded that Federal Consistency application must be directed to the Bureau's GCMP office and must bear the DPW Director's approval also indicating the name of the duly authorized/designated representative and/or consultant/contractor for the DPW's specific project, funded by the Federal Highway Administration (FHWA), as agreed upon during agency's meeting for the submission for review of Federal Consistency applications.

Sincerely,



LORILEE T. CRISOSTOMO  
Director

cc: GEPA  
DoAg  
DPR/GHPO  
DLM  
DPW  
NOAA/ Loerzel

### G.3 Government of Guam, Department of Land Management

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## Correspondence Record

Date	Subject	Attachment	
March 28, 2012	Ajayan Bridge Replacement Project	Yes	
		No	x
Contacted By (Name/Title)	Contacted By (Agency)	Person Contacted (Name/Title)	Person Contacted (Agency)
Christopher Timko	AECOM Environment	Frank Taitano	Guam DLM

### Ajayan Bridge Replacement Project and the Achang Marine Preserve

Frank Taitano stated that the preserve only extends as far as the right-of-way for Route 4 or ten meters from shore. If the right-of-way is within the ten meters then the preserve stops at the right-of-way. He also recommended that a biologist be present during the construction to make sure that species in the rare estuarian environment be protected and he said that if the construction project does infringe upon the preserve at any time then there **must** be a biologist present. If the biologist calls for a halt to construction in order to protect wildlife then all construction will need to cease immediately. Construction will not continue until the biologist deems that the wildlife has been protected.

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G.4 Government of Guam, Department of Land Management, Guam Seashore Protection Commission

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May 7, 2012

Monte Mafnas  
Executive Secretary, Guam Seashore Protection Commission  
c/o Department of Land Management  
Government of Guam  
P.O. Box 2950  
Hagatna, Guam 96910

Subject: Request to Initiate Informal Wetlands / Seashore Reserve Permit Consultation  
for **Ajayan Bridge Replacement Project**, Guam

Dear Mr. Mafnas:

The U.S. Department of Transportation - Federal Highways Administration (FHWA), in coordination with the Guam Department of Public Works (DPW) proposes to replace the existing Ajayan River Bridge located on Route 4, on the boundary between Merizo and Inarajan. AECOM is contacting your agency on behalf of the DPW and FHWA. A Categorical Exclusion document for compliance with the National Environmental Policy Act (NEPA) will be prepared for the project.

#### **Ajayan Bridge Existing Condition**

The Ajayan River Bridge is located on Route 4 on the boundary between Merizo and Inarajan, as shown in Figure 1-1.

The existing single span cast-in-place concrete box girder bridge was constructed in 1968 with a span of approximately 76.2 feet and a skew of 40 degrees. Abutments are founded on concrete piles and the deck has an asphalt concrete wearing surface. The most recent bridge inspection report, dated May 27, 2004, noted that the substructure and channel are rated in serious condition with cracking and differential movement noted for substructure units and significant scour at abutments, as shown in the attached Photo Log. The channel alignment and waterway opening are also noted as deficient.

#### **Proposed Action**

The proposed action would replace the existing two-lane bridge across the Ajayan River just upstream of the river mouth as it enters the ocean. Bridge abutment slopes would be protected from erosion by placement of stone rip rap. There would be minimal roadway approach work. Proposed improvements include two 12-foot lanes with 8-foot paved shoulders. Roadway alignment and grade would match existing at points of tie-in. Roadway work within project limits would include removal of the existing pavement and design of full-depth pavement replacement and replacement of guardrail. The proposed action would include geotechnical sampling, testing, and analysis. As shown in Figure 1-2, soil borings for bridge foundations would be taken at two locations, one at each proposed substructure unit, to a depth of at least 100 feet or at least 10 feet into competent bedrock, whichever is shallower. Additionally, two shallow borings to a depth of 15 feet would be taken within the roadway approach area. All work would be conducted within existing right-of-way.

A review of Guam Marine Preserves identified that the proposed action is adjacent to the Achang Reef Flat Marine Preserve, as shown in Figure 1-3. However, the marine preserve only extends as far as the road right-of-way; therefore, the proposed action would not encroach upon the preserve area.

The FHWA requests that you review the project information provided above to determine if there are any Guam Seashore Protection Commission issues that may be affected by this undertaking. Please feel free to contact me at 808.356.5394 (office), 808.223.9213 (cell), or via email at [Jennifer.Scheffel@aecom.com](mailto:Jennifer.Scheffel@aecom.com).

Thank you for your attention to this project notification and any comments you may have.

Sincerely,



Jennifer M. Scheffel  
Environmental Planner

Enclosures: Figure 1-1: Site Location Map  
Figure 1-2: Geotechnical Soil Boring Locations  
Figure 1-3: Achang Reef Flat Marine Preserve  
Photo Log

cc: Joanne M. S. Brown, DPW  
Ramon Padua, DPW  
Joaquin Blaz, DPW  
Paul Wolf, PB  
Nora Camacho, PB  
James Mischler, PB  
Edgar Hipolito, AECOM  
Kosal Krishnun, AECOM  
Nemencio Macario, N.C. Macario & Associates, Inc.

G.5 Government of Guam, Environmental Protection Agency

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April 29, 2014

Eric M. Palacios  
Administrator  
Guam Environmental Protection Agency  
P.O. Box 22439 GMF  
Barrigada, Guam 96921

**Subject: Ajayan Bridge Replacement Project, Guam EPA Request for Consultation**

Dear Mr. Palacios:

The U.S. Department of Transportation, Federal Highway Administration (FHWA), in coordination with the Guam Department of Public Works (DPW), proposes to replace the existing Ajayan River Bridge located on Route 4, on the boundary between Merizo and Inarajan. A Categorical Exclusion document for compliance with the National Environmental Policy Act (NEPA) is being prepared for the Route 4 Ajayan Bridge Replacement Project (project).

We are contacting you to initiate consultation on behalf of FHWA and DPW.

### **Ajayan Bridge Existing Condition**

The Ajayan Bridge is located on Route 4 on the boundary between Merizo and Inarajan. The bridge provides two lanes that cross the Ajayan River just upstream of the river mouth as it enters the ocean, as shown in Enclosure A – Project Location Map.

The existing single-span cast-in-place concrete box girder bridge was constructed in 1968, with a span length of approximately 76.2 feet and a skew of 40 degrees. Abutments are founded on concrete piles; the deck has an asphalt concrete wearing surface. The most recent bridge inspection report, dated May 27, 2004, noted that the substructure and channel are rated in serious condition. The damage noted includes cracking and differential movement of substructure units and significant scour at abutments, as shown in Enclosure B – Photo Log.

### **Project Description**

The existing bridge will be demolished and replaced with a new 40-foot-wide by 105-foot-long bridge. The proposed improvements include two 12-foot-wide lanes and two 8-foot-wide paved shoulders. Roadway alignment and grade will match the existing at the point of tie-in.

To accommodate traffic while the new bridge is being constructed, the bridge will be demolished in two phases, demolishing one side (longitudinally) of the bridge at a time. This will allow two-way traffic (one lane, controlled by traffic lights) to use the bridge during demolition and construction.

The project will entail the demolition and removal of the existing bridge structure and existing pile caps. The existing piles below the waterline will be cut and capped at the mudline, but left in-place. This will provide for minimal disturbance of the aquatic ecosystem. Roadway work within the project limits will include removal of the existing pavement, full-depth pavement replacement, and replacement of the guardrails. The proposed action will also include geotechnical sampling, testing, and analysis. As shown in Enclosure C – Proposed Geotechnical Soil Boring Locations, soil borings for bridge foundations will be taken at two locations, one at each proposed substructure unit, to a depth of at least 100 feet or at least 10 feet into competent bedrock, whichever is shallower. Additionally, two shallow borings to a depth of 15 feet will be taken within the roadway approach area.

## **Demolition and Construction Methods**

### Demolition

Bridge demolition will include removal of the existing bridge deck, box beam, abutments, wing walls, guardrails, and parapet. The existing bridge is approximately 29.6 feet wide and will be demolished in two phases to allow for one lane to remain open for traffic. Phase 1 will include saw-cutting the westbound portion of the existing bridge and removing it by crane. Phase 2 will include the same actions to the eastbound portion of the existing bridge. Before demolition and removal, a temporary concrete barrier will be installed on the existing bridge, and existing utilities will be temporarily relocated to the opposite portion of the bridge during each phase.

Demolition of the existing abutment walls will be accomplished by use of jackhammers and/or hoe rams, and removed via mechanical equipment such as a backhoe. The existing bridge abutments will be demolished and the existing piles will be cut down to the river bed. The soil between the old abutment and new abutment will be excavated, and 48-inch-thick grouted riprap will be placed on a gradual slope from the new abutment to the remaining old pilings, as shown in Enclosure D – Bridge Profile. A combined total of approximately 540 cubic yards of soil and concrete abutment wall material will be excavated from below the mean high water (MHW) line of the Ajayan River. The combined total linear disturbance to the stream channel from the excavation of the soil and concrete abutment wall material will be approximately 407 linear feet.

### Construction

Construction of the new bridge will also be performed in two phases so that two-way signal-controlled traffic can be maintained in one lane during construction. Phase 1 will include demolition of the existing westbound portion of the bridge and construction of the new westbound portion of the bridge. During Phase 1, utilities and two-way signal-controlled traffic will be temporarily relocated to the eastbound portion of the existing bridge. Phase 2 will include demolition of the existing eastbound portion of the bridge and construction of the new eastbound portion of the bridge. During Phase 2, utilities will be permanently installed in the westbound portion of the new bridge, and two-way signal-controlled traffic will be temporarily relocated to the westbound portion of the new bridge. Work areas for Phase 1 and Phase 2 are shown in Enclosure E – Traffic Control Plans.

New bridge foundations will be constructed inland, or behind, the existing abutments to minimize disturbance to the river channel. The proposed abutments will be set back from the existing abutments. The soil and grouted riprap between the remaining existing piles and the new abutment will be sloped back at a 3H:1V ratio. The two new abutments will be constructed at the top of the slope and supported by twelve piles (per abutment), for a combined total of twenty-

four new octagonal 16.5-inch-diameter concrete piles (100 tons per pile). The new abutments and abutment piles will be constructed above the MHW line.

Approximately 947 cubic yards of grouted stone riprap will be placed along the abutment walls, below the MHW line, to protect the abutment from erosion caused by waves. The riprap (fill material) will be placed along approximately 401 linear feet of stream channel. The riprap will be placed within the excavation footprint and will not impact additional areas of the stream channel.

#### Best Management Practices

Best management practices (BMPs) will include catchment platforms and protective netting, silt screen fences, and turbidity curtains. Catchment platforms and protective netting will be installed under the bridge to keep debris from falling into the water. Silt screen fences will be placed at the slope toe around the river edges to prevent erosion and rubbish from going into the water. Turbidity curtains will be installed at both river banks surrounding the work areas to prevent the spread of silt and sediment into the river and bay (see Enclosure F – BMP Drawings).

#### **Agency Coordination**

Other Guam and federal agencies have been contacted for consultation.

Site specific species and habitat information has been provided by Guam Department of Agriculture, Division of Aquatic and Wildlife Resources (DAWR), U.S. Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NMFS). As requested by the various agencies, flora and fauna surveys were completed for this project. Additional BMPs and avoidance and minimization measure will be implemented based on recommendations from agency consultation. Determinations of species and habitat effects will be made in coordination with resource agencies.

Consultation with the Government of Guam, State Historic Preservation Office (SHPO) has been initiated and SHPO has accepted the Final Archaeological Monitoring and Data Recovery Plan for this project.

The U.S. Army Corps of Engineers (ACOE) has determined tidal waters of Ajayan Bay of the Pacific Ocean are navigable water of the U.S. under ACOE jurisdiction. The ACOE has confirmed the discharge of dredged and fill material associated with this bridge replacement project will require authorization from the ACOE, under Section 404 of the Clean Water Act.

The U.S. Coast Guard (USCG) has confirmed the Ajayan River is tidally influenced and subject to USCG jurisdiction. The USCG had determined the project location is in the USCG advance approval category for permitting the construction of the bridges, pursuant to 33 CFR 115.70. Therefore, a specific USCG bridge permit will not be required for this project.

Consultation has also been initiated with Government of Guam, Department of Land Management (DLM) and DLM, Guam Seashore Protection Commission.

Thank you for your attention to this project notification and any comments you may have. The project team is available to meet with you to discuss this project in greater detail. Should you have any questions or comments based on the above proposed project specifics, please contact George Redpath at [george.redpath@aecom.com](mailto:george.redpath@aecom.com) or at (808) 954-4525.

Sincerely,



George Redpath  
Senior Project Manager

Enclosures:    Enclosure A – Project Location Map  
                  Enclosure B – Photo Log  
                  Enclosure C – Proposed Geotechnical Soil Boring Locations  
                  Enclosure D – Bridge Profile  
                  Enclosure E – Traffic Control Plans  
                  Enclosure F – BMP Drawings

cc:            Richelle Takara, FHWA (via email)  
                  Carl V. Dominguez, DPW (via email)  
                  Joaquin Blaz, DPW (via email)  
                  Jim Mischler, Parsons Brinckerhoff (via email)  
                  Nora Camacho, Parsons Brinckerhoff (via email)  
                  Kosal Krishnun, AECOM (via email)  
                  Nemencio Macario, N.C. Macario (via email)



## N.C. MACARIO & ASSOCIATES, INC

Engineering\*Planning\*Construction Management\*Value Engineering

270 Guerrero Dr. aka Pick-a-nail Rd. Tamuning, GU 96913 Telephone: (671) 646-0947/8

Fax: (671) 646-0901 P.O Box 784 Hagatna, GU 96932 e-mail: [ncma@guam.net](mailto:ncma@guam.net) [ncm@ncmacario.com](mailto:ncm@ncmacario.com)

May 1, 2014

Project: Route 4 Ajayan Bridge Replacement, GQ-ER-004(114)  
Merizo, Guam  
Subject: GEPA Consultation Letter  
Place: GEPA Office  
Time: 3::30 pm

### **MINUTES OF THE MEETING**

Present: Angel B. Marquez, Acting Chief engineer (GEPA)  
Alex M. Dorado, P.E. (NCMA)

Item	Discussed	Action
1.	The advanced hard copy consultation letter was personally received by Mr. Marquez.	
2.	I informed him that an official consultation letter will be mailed to them for their review and comments.	
3.	Mr. Marquez told me that they will review the letter and any comments will be sent to us. I also told him that we are willing to seat down with them to discuss their comments if needed.	

The meeting was adjourned at 3:45pm.

Prepared by:

Alex M. Dorado, P.E.

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G.6 Government of Guam, State Historic Preservation Office

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**Eddie B. Calvo**  
Governor

**Department of Parks and Recreation**  
**Government of Guam**  
490 Chalan Palasyo  
Agana Heights, Guam 96910  
Director's Office: (671) 475-6296/7  
Facsimile: (671) 477-0997  
Parks Division: (671) 475-6288/9  
Guam Historic Resources Division: (671) 475-6294/5  
Facsimile: (671) 477-2822



**Raymond F.Y. Blas**  
Director

**Ray Tenorio**  
Lt. Governor

In reply refer to:  
RC 2012-10140

December 3, 2013

Richelle M. Takara, P.E.  
Transportation Engineer  
U.S. DOT - Federal Highway Administration  
300 Ala Moana Blvd., Rm 3-306  
Box 50206  
Honolulu, HI 96850

Subject: Review of: *Archaeological Monitoring and Data Recovery Plan for the Ajayan Bridge Replacement Project, Merizo, Guam*

Dear Ms. Takara:

We reviewed the subject plan and have the following comments:

1. Page 3, Photos 1 and 2: These photos are basically the same westward views. Please replace Photo 2 with a view facing eastward. Photo 2 can be used elsewhere to express the non-need for any testing in this area.
2. Page 4, Figure 2: The figure is too small and the north arrow should point toward the spine of the document when presenting landscape figures.
3. Page 6, Number 7: A Management Summary (MS) is transformed into an "Abbreviated Report" (AB). The way it reads here it is just the re-designation of the name.
4. Pages 16, 17, and 19, Figures 4, 5 and 6: Please place tics on maps in the future.
5. Page 22, Trade and Exchange, First Paragraph: Will an Energy Dispersive X-Ray Fluorescence analysis be conducted to identify the lithics and possible source of material, or will some other type of analysis be used?
6. Page 24, Data Collection and Recording, First Paragraph: Remove the word "Traditional."
7. Page 25, First Paragraph: Significant features need to be bisected with half removed for floatation for light and heavy fractions.

Should you have any questions do not hesitate to contact us at (671) 475-6339.

Sincerely,

Raymond F.Y. Blas  
Director

Lynda Bordallo Aguon  
State Historic Preservation Officer

cc: Debra K. Green, IARII and N.C. Macario & Associates, Inc.



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Hawaii Federal-Aid Division**

January 27, 2014

300 Ala Moana Blvd, Rm 3-306  
Box 50206  
Honolulu, Hawaii 96850  
Phone: (808) 541-2700  
Fax: (808) 541-2704

In Reply Refer To:  
HDA-HI

**Ms. Lynda Aguon**  
**State Historic Preservation Officer**  
Guam Historic Resources Division  
Department of Parks and Recreation  
490 Chalan Palayso  
Agana Heights, GU 96910

**Subject: Final Archaeological Monitoring and Data Recovery Plan -  
Ajayan Bridge Replacement  
Project Number GQ-ER-004(114)  
RC2012-10140**

Dear Ms. Aguon:

Thank you for your letter dated December 3, 2013 which provided comments to the November 2013 Archeological Monitoring and Data Recovery Plan (AMDRP) for the subject project. Enclosed please find a revised AMDRP which addresses all your comments.

We hope you find this document to your satisfaction and thank you for your assistance. We look forward to your approval of the AMDRP for the subject project, as submitted. If you have any comments or questions, please contact me at (866) 233-8177 extension 2311 or email me at [Richelle.takara@dot.gov](mailto:Richelle.takara@dot.gov).

Sincerely yours,

Richelle M. Takara, P.E.  
Transportation Engineer

Enclosure: Revised AMDDRP dated December 2013

cc: Carl V. Dominguez, DPW (via email)  
Joaquin Blaz, DPW (via email)  
Ray Blas, DPW (via email)  
Snaebjorn Jonasson, PTG (via email)  
Nora K. Camacho, PB (via email)  
N.C. Macario (via email)  
Debra K. Green, IARII (via email)  
John Mark Joseph, DPR (via email)



**Eddie B. Calvo**  
*Governor*

**Ray Tenorio**  
*Lt. Governor*

**Department of Parks and Recreation**  
**Government of Guam**  
490 Chalan Palasyo  
Agana Heights, Guam 96910  
Director's Office: (671) 475-6296/7  
Facsimile: (671) 477-0997  
Parks Division: (671) 475-6288/9  
Guam Historic Resources Division: (671) 475-6294/5  
Facsimile: (671) 477-2822



**Raymond F.Y. Blas**  
*Director*

In reply refer to:  
RC2012-10140

January 28, 2014

Richelle M. Takara, P.E.  
Transportation Engineer  
Hawaii Federal-Aid Division  
Federal Highway Administration  
U.S. Department of Transportation  
300 Ala Moana Blvd, Rm 3-306  
Box 50206  
Honolulu, Hawaii 96850

Subject: Review of Final Archaeological Monitoring and Data Recovery Plan  
Ajayan Bridge Replacement  
Project Number GQ-ER-004(114)  
RC2012-10140

Dear Ms. Takara:

Thank you for submitting the Final Archaeological Monitoring and Data Recovery Plan dated December 2013, including the Comments Resolution Table, which, in all due respect, expedited our review. You have more than adequately addressed our December 3, 2013 comments, thus, we find the Final AMDRP acceptable.

We look forward to working closely with you on this, and other FHWA Guam projects. Should you require further assistance, please do not hesitate to contact our office.

Sincerely,

Raymond F.Y. Blas  
Director

Lynda Bordallo Aguon  
State Historic Preservation Officer



**Eddie B. Calvo**  
Governor

**Ray Tenorio**  
Lt. Governor

**Department of Parks and Recreation**  
**Government of Guam**

490 Chalan Palasyo, Agana Heights, Guam 96910  
Director's Office: (671) 475-6296/7; Fax (671) 477-0997  
Parks Division: (671) 475-6288/9  
Guam Historic Resources Division: (671) 475-6294/5  
Facsimile: (671) 477-2822



**Robert S. Lizama**  
Director

**William N. Reyes**  
Deputy Director

In reply refer to:  
RC2012-10140

July 18, 2016

Richelle M. Takara, P.E.  
Transportation Engineer  
Hawaii Federal-Aid Division  
U.S. Department of Transportation  
Federal highway Administration  
300 Ala Moana Blvd, Rm 3-306  
Box 50206  
Honolulu, Hawaii 96850

Subject: *Ajayan Bridge Replacement Project, FHWA Project Number: GQ-ER-0004(114)*  
*SHPO Reference: RC2012-1014*  
*Draft Letter Report and Request for Concurrence on Section 106 Determination*

Dear Ms. Takara:

We have reviewed your letter dated March 10, 2016, along with the attached Draft Letter Report, and have provided our comments below.

The original Archaeological Monitoring and Data Recovery Plan (AMDRP) (Green 2013), was revised with a modified testing plan and further amended in a GHRD Request for Assistance (*J.M. Joseph, November 23, 2015*) from IARII (*IARII Draft Letter Report to Nemencio C. Macario, January 18, 2016*).

The final plan resulted in conducting a pedestrian archaeological survey east of the bridge (Area A) and excavation of six (6) backhoe trenches (BT) in areas that have the potential to impact cultural deposits. Two (2) backhoe trenches were excavated in the embankment on the south edge of Route 4 and four (4) were excavated in Area A (as shown in Figure 2, on Page 8.) These modifications and changes resulted in an amended Scope of Work as Phase 1 and Phase 2; please refer to your letter to SHPO dated February 12, 2015.

Comments on the Draft Letter Report include:

- Figure 2, Page 8 - Ajayan Bridge Restoration engineering map showing areas of concerns and locations of backhoe trenches, provided by Macario and Associates. Our GIS map shows Ahayan Way located on the west-side of the river, instead of east-side of the river, inside Area A. Re-confirm location of Ahayan Way, and make the correction if necessary.
- Figure 3, on Page 9 - 11" X 14" pull-out page that shows the photographs of the stratigraphic profiles of the backhoe trenches that were excavated. The photos are small and Trench No. 4 photo was not included, neither were photo-boards visible in any of the photos. Trench No. 4 must be included, and the photo-boards must be visible in all of the photos of the backhoe trenches.

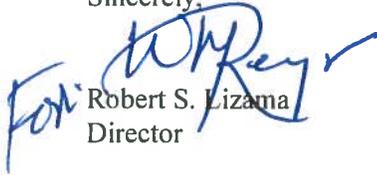
Moreover, instead of using the 11" X 14" pull-out page for all the six (6) stratigraphic profiles and photos of the backhoe trenches, please prepare these in the following manner:

"Photos should be 3.5 to 3.92 in height for landscape photos. Portrait photos should range from 4.5 to 7.7 inches in height. If the photo or figure takes up the entire page then the caption should be at fore edge and not at the spine of the document. Photos, images, and figures must not be blurry, and the photo-board, north arrow and scale needs to be visible in the photograph. If the photos are small then there should be two (2) photos per page, thus, reducing white space. Correlate your figures, photos, etc., with the narrative. Profile and plan view photos of excavation units, features should be taken straight on and not at severe angles."  
(Basic Reporting Requirements, March 18, 2014)

- It appears that none of the backhoe trenches were deeper than 7 feet (2.13 m), although they may be discontinued if solid rock or submerged coarse marine sediment are being encountered. All BTs mentioned resulted in no encounters or exposure of archaeological or cultural materials, deposits, or features, but in Trench 5, when does a road not constitute a feature? Doesn't this road represent a buried A Horizon?
- Although we did not receive your Section 106 request to review this undertaking in the initial stages of consultation, we will concur with your determination of "No Adverse Effect" on historic properties, after we review and accept the Draft Report with the corrections noted above.

We look forward to receiving the Draft Report. If you have any questions or need clarification, please do not hesitate to contact us.

Sincerely,

  
For Robert S. Lizama  
Director

  
Lynda Bordallo Aguon  
State Historic Preservation Officer

Cc: Jeff Wilson, P.E., Senior Project Manager  
Parsons Brinckerhoff, Inc.  
Glenn Leon Guerrero, DPW  
Rachel Adams, PB  
Joaquin Blaz, DPW

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G.7 National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Pacific Islands Regional Office, Protected Resources Divisions – Endangered Species Act Consultation

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May 31, 2012

Ms. Lisa Van Atta  
Assistant Regional Administrator - Protected Resources Division  
National Marine Fisheries Service  
Pacific Islands Regional Office  
1601 Kapiolani Blvd., Suite 1110  
Honolulu, HI 96814

Subject: Guam Department of Public Works, Proposed Ajayan Bridge Replacement  
Project Project No. GQ-ER-0004(114)/GU-NH-0004(114)  
Request for Species List

Director Ms. Van Atta:

The U.S. Department of Transportation - Federal Highways Administration (FHWA), in coordination with the Guam Department of Public Works (DPW) proposes to replace the existing Ajayan River Bridge located on Route 4, on the boundary between Merizo and Inarajan. A Categorical Exclusion document for compliance with the National Environmental Policy Act (NEPA) will be prepared for the project.

#### **Ajayan Bridge Existing Condition**

The Ajayan River Bridge is located on Route 4 on the boundary between Merizo and Inarajan, as shown in Figure 1-1.

The existing single span cast-in-place concrete box girder bridge was constructed in 1968 with a span of approximately 76.2 feet and a skew of 40 degrees. Abutments are founded on concrete piles and the deck has an asphalt concrete wearing surface. The most recent bridge inspection report, dated May 27, 2004, noted that the substructure and channel are rated in serious condition with cracking and differential movement noted for substructure units and significant scour at abutments, as shown in the enclosed Photo Log. The channel alignment and waterway opening are also noted as deficient.

#### **Proposed Action**

The proposed action would replace the existing two-lane bridge across the Ajayan River just upstream of the river mouth as it enters the ocean. Bridge abutment slopes would be protected from erosion by placement of stone rip rap. There would be minimal roadway approach work. Proposed improvements include two 12-foot lanes with 8-foot paved shoulders. Roadway alignment and grade would match existing at points of tie-in. Roadway work within project limits would include removal of the existing pavement and design of full-depth pavement replacement and replacement of guardrail. The proposed action would include geotechnical sampling, testing, and analysis. As shown in Figure 1-2, soil borings for bridge foundations would be taken at two locations, one at each proposed substructure unit, to a depth of at least 100 feet or at least 10 feet into competent bedrock, whichever is shallower. Additionally, two shallow borings to a depth of 15 feet would be taken within the roadway approach area. All work would be conducted within existing right-of-way.

To assist FHWA and DPW with report documentation, compliance with the Endangered Species Act, NEPA, and other relevant laws and regulations, we respectfully request a listing of threatened and endangered species, Federal candidate species, and/or plants and animals of special concern that are known to occur or have the potential to occur within the proposed project area.

We appreciate your efforts in assisting us with the development of this project. If you require additional information, please feel free to contact me at 808.356.5394 (office direct), 808.223.9213 (cell), or via email at [Jennifer.Scheffel@aecom.com](mailto:Jennifer.Scheffel@aecom.com).

Thank you for your attention to this project notification and any comments you may have.

Sincerely,



Jennifer M. Scheffel  
Environmental Planner

Enclosures: Figure 1-1: Site Location Map  
Figure 1-2: Geotechnical Soil Boring Locations  
Photo Log

cc: Don Hubner, NMFS (via email)  
Joanne M. S. Brown, DPW (via email)  
Ramon Padua, DPW (via email)  
Joaquin Blaz, DPW (via email)  
Paul Wolf, Parsons Brinckerhoff (via email)  
Nora Camacho, Parsons Brinckerhoff (via email)  
James Mischler, Parsons Brinckerhoff (via email)  
Jennifer Scheffel, AECOM (via email)  
Edgar Hipolito, AECOM (via email)  
Nemencio Macario, N.C. Macario & Associates, Inc. (via email)  
Richelle Takara, FHWA (via email)

## Scheffel, Jennifer

---

**From:** Donald Hubner [donald.hubner@noaa.gov]  
**Sent:** Monday, June 04, 2012 3:59 PM  
**To:** Scheffel, Jennifer  
**Cc:** joanne.brown@dpw.guam.gov; joaquin.blaz@dpw.guam.gov; Richelle.TAKARA@dot.gov; Wolf@pbworld.com; 'Camacho, Nora'; Patrick Opay  
**Subject:** Ajayan Bridge Replacement Project, Guam, FHWA Project No. GQ-ER-0004(114)/GU-NH-0004(114)  
**Attachments:** Marianas Species List Apr 2008.doc; IndoPacific\_Corals-for Pub until proposal.xls

Aloha and Hafa Adai Jennifer, and All, (Please disregard the previous e-mail with the wrong subject line) : /

My name is Donald M. Hubner. I am an endangered species biologist at the NMFS Pacific Islands Regional Office, and have been assigned to provide the species list your office requested for the Federal Highway Administration's (FHWA) proposed Ajayan Bridge Replacement Project, Guam, FHWA Project No. GQ-ER-0004(114)/GU-NH-0004(114).

The information I provide here is limited to protected species under NMFS jurisdiction (marine resources), and is based on the best information available to me at this time, here in Hawaii. I recommend that you contact the US Fish and Wildlife Service (USFWS) for protected species under their jurisdiction (terrestrial and aquatic), as well as contacting the Government of Guam's Division of Aquatic and Wildlife Resources (DAWR) for more refined, site-specific species and habitat information, such as any upstream occurrence of sea turtles at the project site.

The information provided in your May 31, 2012, letter indicates that the project would take place adjacent to the marine shoreline, but does not describe in any detail what in-water work would be done to remove and replace the bridge. Green and hawksbill sea turtles (*Chelonia mydas* and *Eretmochelys imbricata*, respectively) are ESA-listed species under NMFS jurisdiction that are expected to occur within the immediate area of the subject bridge. Both species are known to swim upstream into fresh water (Satellite tags have confirmed green sea turtles at least 1 mile upstream in some cases. I recommend that you contact DAWR staff on Guam for sight-specific information. There are also several species of corals that are candidates for listing under the ESA. The attached file indicates the best information we currently have to identify which of the candidate corals may be found on Guam. However, we have no information to confirm or deny their occurrence at the project site or on adjacent reefs.

Should the project include in-water pile driving, or other activities that could have off-shore effects, several marine mammal species could also be impacted. Please refer to the attached species list for all protected marine species that are known or expected to occur in the Marianas Archipelago. Of those animals, humpback and sperm whales (*Megaptera novaeangliae* and *Physeter macrocephalus*) are ESA/MMPA protected species that could occur within the action area. Spinner dolphins (*Stenella longirostris*) are also known to occur in nearshore waters around Guam, but are protected under the MMPA only. Should this action be expected to adversely impact marine mammals, our Silver Spring Office needs to be included in the consultation for coverage under the MMPA.

Please contact me if you have any questions or comments.

Thank you, Don

--

Donald M. Hubner  
Endangered Species Biologist  
NOAA/NMFS Pacific Islands Regional Office

November 12, 2012

Mr. Donald Hubner  
Endangered Species Biologist  
NOAA/NMFS Pacific Islands Regional Office  
1601 Kapiolani Blvd., Ste 1110  
Honolulu, HI 96814

**Subject:** Ajayan Bridge Replacement Project Proposed Construction Details  
Project No. GQ-ER-0004(114)/GU-NH-0004(114)

Dear Mr. Hubner,

This letter is to follow-up with you on the proposed subject line project. Throughout our consultation process with local and federal agencies, there have been a few instances when there was a misunderstanding over the project location. To the east of our proposed project there is another separate Federal Highway Administration (FHWA) project taking place at the Agfayan Bridge. The intent of this letter is to clarify the project location and give a more thorough description of the demolition and construction work being proposed in the Ajayan Bridge Replacement Project.

### **Background**

In June 2012, AECOM sent a letter to FWS, National Marine Fisheries Service (NMFS), and Guam Department of Agriculture DAWR, describing the proposed bridge replacement project and requesting a list of threatened and endangered species that are known to occur or have the potential to occur within the proposed project area (Attachment 1). We received an email response from your office (see Attachment 2) and want to clarify that it was indeed referring to the Ajayan Bridge (see Figure 1, Site Location Map).

### **Project Specifics**

The existing bridge will be demolished by cutting it into sections that will be removed by a crane. The existing bridge abutments will be demolished and the existing piles will be cut down to the river bed. The embankment soil between the old abutment and the new abutment will be removed (Figure 2, Bridge Profile). The bridge will be partially demolished to allow two-way, one land traffic while the first half of the new bridge is being constructed. After phase 1 is complete, it will be shifted to the other side to construct the other half of the bridge. Best

Management Practice (BMP) will include catchment platforms and protective netting, silt screen fences, and a turbidity curtain.

All work will be completed within the existing right-of-way (ROW). The proposed new 40-foot wide by 105-foot long bridge will replace the existing box beam type bridge. A new bridge foundation will be constructed inland, or behind the existing abutment to minimize disturbance to the river channel. Twenty-four new piles will be driven to support the new abutment. The soil between to old abutment and new abutment will be excavated and grouted riprap will be placed on a gradual slope from the new abutment to the remaining old pilings. Each side of the bridge will have a concrete barrier poured integrally with the bridge deck. A standard road barrier and railing on either side of the bridge will tie in to the concrete barrier. All other utilities will be considered as part of the load to be carried by the bridge and supported by the bridge hangers. All construction will take place within the existing right-of-way and, with the exception of the temporary turbidity curtain, no construction will take place in the river channel.

**Recommendation**

We appreciate the comments sent via email in June. We will continue to consult with your office regarding the species of concern and to clarify your questions regarding proposed construction methods. If you have additional comments or recommendations based on the above proposed project specifics, please contact Julia Staley at [julia.staley@aecom.com](mailto:julia.staley@aecom.com) or at 808-954-4523.

Sincerely,



Julia Staley  
Environmental Planner

Enclosures: Consultation letter AECOM to NMFS  
Consultation response NMFS to AECOM  
Project Location Map  
Bridge Profile Plan

c: Valerie Brown, NMFS (via email)  
Nora Camacho, PB (via email)  
James Mischler, PB (via email)

## Johnson, Landin

---

**From:** Donald Hubner <donald.hubner@noaa.gov>  
**Sent:** Tuesday, November 20, 2012 1:35 PM  
**To:** Staley, Julia  
**Cc:** valerie.brown@noaa.gov; CamachoN@pbworld.com; Mischler@pbworld.com; Redpath, George  
**Subject:** Re: Ajayan Bridge Replacement; Project No. GQ-ER-0004(114)/GU-NH-0004(114)

Aloha Julia,  
It has been such a pleasure working with you! : )

In answer to the question of whether or not the species list I originally sent applies to the Ajayan Bridge Project (Proj. No, GQ-ER-0004(114)/GU-NH0004(114), yes, it does. However, based on the project description provided, there would be no in-water pile driving, so I doubt that there would be any impact on marine mammals. In short, green and hawksbill sea turtles are the only ESA-listed marine species expected to occur in the action area for this project. As discussed, I still recommend that you contact Val Brown of NMFS HCD, and Brent Tibbets (spl?) of Guam DAWR to determine which (if any) corals may be growing on or near the bridge.

Mahalo, Don

--

Donald M. Hubner  
Endangered Species Biologist  
NOAA/NMFS Pacific Islands Regional Office  
1601 Kapiolani Blvd. Ste 1110  
Honolulu, HI 96814  
(808) 944-2233

On 11/12/2012 10:14 AM, Staley, Julia wrote:

Aloha Mr. Hubner,

As per our conversation last week, I am sending you the description for the subject line project. I have copied Ms. Brown on this for further coordination on obtaining a complete species list. You requested that we send this letter electronically; if in the future you would like a hard copy, I am happy to oblige. We appreciate your help.

Thank you for your assistance,  
Julia

Julia Staley  
Environmental Planner  
West Region, Pacific District  
Direct 808.954.4523 Fax 808.523.8950  
[julia.staley@aecom.com](mailto:julia.staley@aecom.com)

**AECOM**  
1001 Bishop Street, Suite 1600, Honolulu, HI 96813  
[www.aecom.com](http://www.aecom.com)



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Hawaii Federal-Aid Division**

July 23, 2014

300 Ala Moana Blvd, Rm 3-306  
Box 50206  
Honolulu, Hawaii 96850  
Phone: (808) 541-2700  
Fax: (808) 541-2704

In Reply Refer To:  
HDA-HI

**Ms. Lisa Van Atta**  
**Assistant Regional Administrator – Protected Resources**  
**National Marine Fisheries Service**  
**Pacific Islands Regional Office**  
**NOAA Inouye Regional Center**  
**1845 Wasp Blvd., Building 176**  
**Honolulu, HI 96818**

**Subject: Route 4 Ajayan Bridge Replacement,**  
**Project No. GQ-ER-0004(114)**  
**Section 7 Endangered Species Act**

Dear Ms. Van Atta,

The U.S. Department of Transportation Federal Highways Administration (FHWA), in close coordination with the Guam Department of Public Works (DPW) requests initiation of informal consultation under Section 7(a)(2) of the Endangered Species Act (ESA) and concurrence with a determination of effect for the proposed replacement of the existing Ajayan River Bridge located on Route 4, on the boundary between Merizo and Inarajan (Project No. GQ-ER-0004(114)).

#### **Ajayan Bridge Existing Condition**

The Ajayan Bridge is located on Route 4 on the boundary between Merizo and Inarajan. The bridge provides two lanes that cross the Ajayan River just upstream of the river mouth as it enters the ocean (Enclosure 1 – Project Location Map).

The existing single-span cast-in-place concrete box girder bridge was constructed in 1968, with a span length of approximately 76.2 feet and a skew of 40 degrees. Abutments are founded on concrete piles; the deck has an asphalt concrete wearing surface. The most recent bridge inspection report, dated May 27, 2004, noted that the substructure and channel are rated in serious condition. The damage noted includes cracking and differential movement of substructure units and significant scour at abutments (Enclosure 2 – Photo Log).

#### **Project Description**

The existing bridge will be demolished and replaced with a new 40-foot-wide by 105-foot-long bridge. The proposed improvements include two 12-foot-wide lanes and two 8-foot-wide paved shoulders. Roadway alignment and grade will match the existing at the point of tie-in.

To accommodate traffic while the new bridge is being constructed, the bridge will be demolished in two phases, demolishing one side (longitudinally) of the bridge at a time. This will allow two-way traffic (one lane, controlled by traffic lights) to use the bridge during demolition and construction.

The project will entail the demolition and removal of the existing bridge structure and existing pile caps. The existing piles below the waterline will be cut and capped at the mudline, but left in-place. This will provide for minimal disturbance of the aquatic ecosystem. Roadway work within the project limits will include removal of the existing pavement, full-depth pavement replacement, and replacement of the guardrails. The proposed action will also include geotechnical sampling, testing, and analysis. As shown in Enclosure 3 – Proposed Geotechnical Soil Boring Locations, soil borings for bridge foundations will be taken at two locations, one at each proposed substructure unit, to a depth of at least 100 feet or at least 10 feet into competent bedrock, whichever is shallower. Additionally, two shallow borings to a depth of 15 feet will be taken within the roadway approach area.

## **Demolition and Construction Methods**

### Demolition

Bridge demolition will include removal of the existing bridge deck, box beam, abutments, wing walls, guardrails, and parapet. The existing bridge is approximately 29.6 feet wide and will be demolished in two phases to allow for one lane to remain open for traffic. Phase 1 will include saw-cutting the westbound portion of the existing bridge and removing it by crane. Phase 2 will include the same actions to the eastbound portion of the existing bridge. Before demolition and removal, a temporary concrete barrier will be installed on the existing bridge, and existing utilities will be temporarily relocated to the opposite portion of the bridge during each phase.

Demolition of the existing abutment walls will be accomplished by use of jackhammers and/or hoe rams, and removed via mechanical equipment such as a backhoe. The existing bridge abutments will be demolished and the existing piles will be cut down to the river bed. The soil between the old abutment and new abutment will be excavated, and 48-inch-thick grouted riprap will be placed on a gradual slope from the new abutment to the remaining old pilings, as shown in Enclosure 4 – Bridge Profile. A combined total of approximately 540 cubic yards of soil and concrete abutment wall material will be excavated from below the mean high water (MHW) line of the Ajayan River. The combined total linear disturbance to the stream channel from the excavation of the soil and concrete abutment wall material will be approximately 407 linear feet.

### Construction

Construction of the new bridge will also be performed in two phases so that two-way signal-controlled traffic can be maintained in one lane during construction. Phase 1 will include demolition of the existing westbound portion of the bridge and construction of the new westbound portion of the bridge. During Phase 1, utilities and two-way signal-controlled traffic will be temporarily relocated to the eastbound portion of the existing bridge. Phase 2 will include demolition of the existing eastbound portion of the bridge and construction of the new eastbound portion of the bridge. During Phase 2, utilities will be permanently installed in the westbound portion of the new bridge, and two-way signal-controlled traffic will be temporarily relocated to the westbound portion of the new bridge. Work areas for Phase 1 and Phase 2 are shown in Enclosure 5 – Traffic Control Plans.

A new bridge foundation will be constructed inland, or behind, the existing abutment to minimize disturbance to the river channel. The proposed abutments will be set back from the existing abutments. The soil and grouted riprap between the remaining existing piles and the new abutment will be sloped back at a 3H:1V ratio. The two new abutments will be constructed at the top of the slope and supported by twelve piles (per abutment), for a combined total of twenty-four new octagonal 16.5-inch-diameter concrete piles (100 tons per pile). The new abutments and abutment piles will be constructed above the MHW line.

Approximately 947 cubic yards of grouted stone riprap will be placed along the abutment walls, below the MHW line, to protect the abutment from erosion caused by waves. The riprap (fill material) will be placed along approximately 401 linear feet of stream channel. The riprap will be placed within the excavation footprint and will not impact additional areas of the stream channel.

#### Best Management Practices

Best management practices (BMPs) will include catchment platforms and protective netting, silt screen fences, and turbidity curtains. Catchment platforms and protective netting will be installed under the bridge to keep debris from falling into the water. Silt screen fences will be placed at the slope toe around the river edges to prevent erosion and rubbish from going into the water. Turbidity curtains will be installed at both river banks surrounding the work areas to prevent the spread of silt and sediment into the river and bay (see Enclosure 6 – BMP Drawings).

#### **Natural Environments**

The proposed project is located within the southern end of Guam, which is characterized by hilly volcanic slopes descending from approximately 800 feet in elevation to sea level over distances of less than 2.5 miles. The project site is situated between the Inarajan and Manell watersheds. The Ajayan Bridge is situated on the southern end of the Ajayan River, adjacent to the Ajayan Bay discharge point. Flora and fauna surveys of the proposed project area were conducted by SWCA Environmental Consultants (SWCA) on November 6 and 7, 2013. During these surveys, emphasis was placed on identifying special-status species. The following paragraphs describe the existing terrestrial and aquatic environments that occur within the proposed project area as reported by SWCA and Guam Department of Agriculture, Division of Aquatic and Wildlife Resources (DAWR).

#### Terrestrial Ecology

Forest surrounding the project area consists mostly of secondary thicket/scrub forest with some ravine forest. Areas of forested palustrine wetlands are located along the east and west banks of the Ajayan River. Several typhoons that occurred between the 1970s and 1990s changed the vegetation in the area dramatically. Site visits conducted by Guam DAWR staff in February and March 2013 found that pago (*Hibiscus tiliaceus*) and tangantangan (*Leucaena leucocephala*) were the two common species in the project area.

During flora surveys performed by SWCA on November 6 and 7, 2013, a total of 19 plants were identified to either genera or species. The seven native plants documented consisted of five trees (pago, *Pandanus tectorius*, *Bougainvillea glabra*, *Callicarpa candicans*, and *Morinda citrifolia*), one fern (*Polypodium scolopendria*), and one grass (*Saccharum spontaneum*). The non-native plants documented were pagua (*Areca catechu*), coconut trees (*Cocos nucifera*), beggar's tick (*Bidens alba*), Siam weed (*Chromolaena odorata*), mile-a-minute vine (*Mikania scanden*), daok (*Calophyllum inophyllum*), papaya (*Carica papaya*), tangantangan, kamachile (*Pithecellobium dulce*), and *Musa* sp.

#### Shoreline Ecology

The project area is located at the mouth of the Ajayan River as it discharges into Achang Reef Flat. The shoreline vegetation is composed primarily of coconut trees, pago, and tangantangan.

Although not located within the boundaries of the project area, a small Nypa palm (*Nypa fruticans*) (also referred to as "Nipa") community was identified approximately 10 meters upstream of the Ajayan River. This species is a wetland obligate and grows in brackish marshes.

### Aquatic Ecology

The Ajayan River flows south and discharges at the Ajayan Bay. The Ajayan Bay includes the eastern portion of the Achang Reef Flat Marine Preserve (Enclosure 7 – Achang Reef Flat Marine Preserve). The Ajayan River channel cuts completely through the reef flat at Ajayan Bay. The reef flat consists of inner and outer reef flats that are exposed at low tide. Mangroves and sea grass beds are present in the vicinity of the project site.

According to the University of Guam Marine Laboratory's Guam Coastal Atlas ([www.guammarinelab.com/coastal.atlas/htm/Maps.htm](http://www.guammarinelab.com/coastal.atlas/htm/Maps.htm)), the benthic habitat of the river channel is composed of "sand, uncolonized 90% to 100%", extending from inland waters to 500 meters offshore. The benthic habitat to the east of the channel is composed of "spur and groove, coral 10% to <50%" near the shore, and "pavement, turf 50% to <90%" after approximately 100 meters offshore. The benthic habitat to the west of the channel is composed of "spur and groove, coral 50% to <90%" near the shore, and "pavement, coral 10% to <50%" after approximately 50 meters offshore.

The Achang Reef Flat supports primarily hard corals. Only two soft coral species have been identified by the University of Guam Marine Lab during monitoring of the site.

Achang Reef Flat is classified as M-1, Excellent. Waters in this category are suitable for whole-body contact and recreation. These waters are also needed for research and to ensure the preservation and protection of marine life, including coral, reef-dwelling organisms, fish, and related resources, and aesthetic enjoyment. The surface waters of the Ajayan River are classified as S-3, Low. Waters in this category are used primarily for commercial, agriculture, or industrial activity. Aesthetic enjoyment and recreational body contact are limited. Maintenance of aquatic life is also limited.

Four sea turtle species occur in the coastal waters surrounding Guam. The green sea turtle (*Chelonia mydas*) and loggerhead sea turtle (*Caretta caretta*) are federally and locally listed as threatened. The Hawksbill sea turtle (*Eretmochelys imbricate*) and leatherback sea turtle (*Dermochelys coriacea*) are federally and locally listed as endangered.

### **Agency Coordination**

In May 2012, AECOM sent a letter to NMFS describing the proposed bridge replacement project and requesting a list of threatened and endangered species that are known to occur or have the potential to occur within the proposed project area. In June AECOM received an email response from your office; (1) identifying the green sea turtle and the hawksbill sea turtle as federally listed species under NMFS jurisdiction expected to occur within the immediate area of the project, (2) recommending U.S. Fish and Wildlife Service (USFWS) and Guam's Division of Aquatic and Wildlife Resource (DAWR) be contacted regarding species under their jurisdiction, (3) stating that the NMFS Silver Springs Office would need to be included in the consultation for coverage under the Marine Mammal Protection Act (MMPA) should the project include in-water pile driving, or other activities that could have off-shore effects, and (4) provided a list of coral species which are candidates for listing under the ESA (Enclosure 8 – June 2012 Response from NMFS). In November 2012, AECOM sent a second letter to NMFS clarifying the project location and provide a more detailed description of proposed demolition and construction activities for the Ajayan Bridge Replacement Project.

Letters describing proposed project activities and requesting lists of special-status species were also sent to USFWS and DAWR. FHWA is also sending a request to USFWS for concurrence on ESA and special-status species effect determinations. An Essential Fish Habitat consultation request has been submitted to NMFS. A description of proposed project activities has been provided to the U.S. Army Corps of Engineers (ACOE). A formal request for Clean Water Act Section 404 Permit and Rivers and Harbors Act

Section 10 Permit will be submitted to the ACOE. The NMFS Silver Spring Office has not been consulted because the project does not include in-water pile driving, or other activities that could have off-shore effects to marine mammals.

As requested by the various agencies, flora and fauna surveys were completed for this project. SWCA performed the flora and fauna survey and their report is included as Enclosure 9 – Flora and Fauna Surveys for the Ajayan Bridge Replacement Project.

### **Federally Threatened and Endangered Species**

Based on background research and the information provided by NMFS, USFWS, and the DAWR, the only federally threatened and endangered species, under NMFS jurisdiction, that may occur within the proposed project area is the federally threatened green sea turtle and the federally endangered hawksbill sea turtle.

#### Green Sea Turtle – Federally Threatened

The federally threatened green sea turtle is the largest of the cheloniidae, with adults that can exceed 3.2 feet in carapace length and 268 pounds in body mass. Characteristics that distinguish the green sea turtle from other species of sea turtle include a smooth carapace with four pairs of lateral scutes, a single pair of prefrontal scales, and a lower jaw-edge that is coarsely serrated, corresponding to strong grooved and ridges on the inner surface of the upper jaw.

The green sea turtle is a circumglobal species found in tropical seas and, to a lesser extent, in subtropical waters with temperatures above 20°C. In the Pacific United States (U.S.) and its territories, the green sea turtle is found along the coasts of Hawaii, American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, and unincorporated U.S. island possessions.

The green sea turtle occupies three habitat types that include open beaches, open sea, and feeding grounds in shallow, protected waters. The open beaches are used for nesting purposes where the adult female green sea turtles will emerge at night to excavate nests and deposit a clutch that may be in excess of approximately 100 eggs. The green sea turtle uses the shallow water habitats to forage, feeding on selected macroalgae and sea greases. The green sea turtle spends the remaining time in the open sea where they may rest and/or are in transient to feeding grounds and/or nesting habitat<sup>1</sup>.

#### Hawksbill Sea Turtle – Federally Endangered

The federally endangered hawksbill sea turtle is recognized by their relatively small (carapace length less than 3.1 feet), narrow head with tapering “beak,” thick, overlapping shell scutes, and strongly serrated posterior margin of the carapace. In addition, hawksbills may be distinguished from the green sea turtle by the transverse division of the prefrontal scales into two pairs (these scales are elongate and undivided in the green sea turtle).

Hawksbill sea turtles are circumtropical in distribution, generally occurring from 30°N to 30°S latitude within the Atlantic, Pacific, and Indian Oceans and associated bodies of water. Along the far western and southwestern Pacific, hawksbills nest on the islands and mainland of Southeast Asia, from China and Japan, throughout the Philippines, Malaysia, and Indonesia, to Papua New Guinea, the Solomon Islands, and Australia.

The hawksbill sea turtle typically selects remote pocket beaches with little exposed sand to nest and deposit their eggs. The nest site is often within the cover of woody vegetation, although some will

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<sup>1</sup> National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1998. Recovery Plan for U.S. Pacific Populations of the Green Turtle (*Chelonia mydas*). National Marine Fisheries Service. Silver Spring, MD.

occasionally nest in grass or open sand if preferred cover is not accessible. Hawksbills are typically found feeding on jellyfish, sea urchins, and sponges within the vicinity of rock or reef habitat in shallow tropical waters with little turbidity<sup>2</sup>.

### Corals

In February 2010, NMFS issued a Notice of 90-Day Finding on a Petition to List 83 Species of Coral as Threatened or Endangered under the ESA and determined that the petitioned action may be warranted for 82 of the 83 petitioned coral species. The petition asserts that these reef-building corals face habitat threats “ from several processes linked to anthropogenic greenhouse gas emissions, including increasing seawater temperatures, increasing ocean acidification, increasing storm intensities, changes in precipitation, and sea-level rise. The petition also asserts that these global habitat threats are exacerbated by local habitat threats posed by ship traffic, dredging, coastal development, pollution, and agricultural and land use practices that increase sedimentation and nutrient loading”<sup>3</sup>.

Of these 82 species, a total of 75 candidate coral species are Indo-Pacific corals within U.S. jurisdiction, 35 of which are found in Guam’s waters (Table 1). Further information regarding these candidate coral species is described in a status review<sup>4</sup> and a draft management report<sup>5</sup>. In the status review, the NMFS Coral Biological Review Team identified and ranked 19 threats to coral species; the highest threats include global ocean warming, local diseases, and global ocean acidification, while local sedimentation was ranked as low to medium threat.

Information regarding the specific species of coral present in the Achang Reef Flat Marine Preserve is not readily available. Until determined otherwise it is conservatively assumed that candidate coral species are present.

**Table 1. Thirty-Five Candidate Coral Species for ESA Listing Found in the Waters of Guam**

No.	Candidate Coral Species	No.	Candidate Coral Species (continued)	No.	Candidate Coral Species (continued)
1	<i>Millepora tuberosa</i>	13	<i>Acropora polystoma</i>	25	<i>Pavona bipartita</i>
2	<i>Heliopora coerulea</i>	14	<i>Acropora striata</i>	26	<i>Pavona cactus</i>
3	<i>Pocillopora danae</i>	15	<i>Acropora vaughani</i>	27	<i>Pavona decussata</i>
4	<i>Pocillopora elegans</i>	16	<i>Acropora verweyi</i>	28	<i>Pavona diffluens</i>
5	<i>Seriatopora aculeata</i>	17	<i>Montipora calculata</i>	29	<i>Pavona venosa</i>
6	<i>Acropora aculeus</i>	18	<i>Montipora lobulata</i>	30	<i>Barabattoia laddi</i>
7	<i>Acropora acuminata</i>	19	<i>Alveopora allingi</i>	31	<i>Cyphastrea agassizi</i>
8	<i>Acropora aspera</i>	20	<i>Alveopora fenestrata</i>	32	<i>Euphyllia cristata</i>
9	<i>Acropora globiceps</i>	21	<i>Alveopora verrilliana</i>	33	<i>Euphyllia paraancora</i>
10	<i>Acropora listeri</i>	22	<i>Porites horizontalata</i>	34	<i>Turbinaria reniformis</i>
11	<i>Acropora microclados</i>	23	<i>Psammocora stellata</i>	35	<i>Turbinaria stellulata</i>
12	<i>Acropora palmerae</i>	24	<i>Leptoseris incrustans</i>		

### Potential Suitable Foraging and Nesting Habitat for Green and Hawksbill Sea Turtles

<sup>2</sup> National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1998. Recovery Plan for U.S. Pacific Population of the Hawksbill Turtle (*Eretmochelys imbricate*). National Marine Fisheries Service. Silver Spring, MD.

<sup>3</sup> National Marine Fisheries Service. 2010. Endangered and Threatened Wildlife; Notice of 90-Day Finding on a Petition to List 83 Species of Coral as Threatened or Endangered Under the Endangered Species Act. 6616 Federal Register Vol. 75, No. 27.

<sup>4</sup> Brainard, R.E., C. Birkeland, C.M. Eakin, P. McElhany, M.W. Miller, M. Patterson, and G.A. Piniak. 2011. Status review report of 82 candidate coral species petitioned under the U.S. Endangered Species Act. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-PIFSC-27, 530 p. + 1 Appendix.

<sup>5</sup> National Marine Fisheries Service. 2012. Management Report for 82 Corals Status Review under the Endangered Species Act. U.S. Dep. Commer., NOAA Tech Memo.

Suitable foraging habitat for green sea turtle and the hawksbill sea turtle is present within the vicinity of the proposed project. The Achang Reef Flat Marine Preserve provides foraging habitat for sea turtles, with food sources such as macroalgae, seagrass beds, and reef-dwelling organisms. Sea turtles have been observed foraging in Ajayan Bay.

Turtle nesting areas are not present at the project site. The *Recovery Plan for U.S. Pacific Populations of Green Turtle* (dated Jan. 12, 1998) reports that there is some low-level nesting of green sea turtle on Guam. The *Recovery Plan for U.S. Pacific Populations of the Hawksbill Turtle* (dated Jan. 12, 1998) reports that hawksbill nesting is rare on Guam. Known nesting beaches on Guam include Ritidian National Wildlife Refuge, Haputo, Urunao, Tumon Bay, Cabras Island, Spanish Steps, Cocos Island, Acho Bay, Nomña Bay, Jinapsan, Tarague Beach, and the waterfront annex of Naval Base Guam<sup>6&7</sup>. The closest known turtle nesting beach to the project site is Acho Bay located approximately one mile (1.6 kilometers) northeast of the project site.

### **Green Sea Turtle and Hawksbill Sea Turtle Determination of Effects**

Foraging habitat for the green sea turtle and hawksbill sea turtle occurs within the vicinity of the proposed project. While known turtle nesting areas are not present at the project site and turtle nesting is not anticipated, there is potentially suitable nesting habitat in the vicinity of the project area. Therefore, the green sea turtle and hawksbill sea turtle could be impacted by various components of the proposed project. The following paragraphs describe the potential effects the proposed project may have on green sea turtle and the hawksbill sea turtle.

#### Direct Physical Impact

The proposed project includes the use of heavy equipment such as cranes, saws, backhoes and jackhammers to demolish the existing bridge and construct the replacement bridge. These activities have the potential to directly strike green and hawksbill sea turtles should the animals be present during the placement of riprap or if debris were to accidentally fall into the water. Potential injuries and their severity would depend on the animal's proximity to the falling material or debris, but may include cuts, bruises, broken bones, cracked or crushed carapaces, and amputations, any of which could result in the animal's death.

Marine animals will likely avoid the project areas on their own due to the on-going activities. In addition, BMPs have been developed to avoid and/or minimize the potential impacts to sea turtles. Some of the BMPs that would be implemented for the proposed project include performing daily surveys, prior to the commencement of work, to insure sea turtles are not within the work zone; work stoppage upon observing a sea turtle within the proposed project area, allowing it to leave on its own; limiting activity beyond the work zone; insuring all objects that are to be placed in the river, are lowered to the bottom in a controlled manner; and use of catchment platforms and protective netting to keep debris from falling into the water. A detailed list of the BMPs that would be implemented for the proposed project is provided in the Avoidance and Minimization Measures section of this document. **Based on the information, FHWA has determined that direct physical impact to sea turtles is extremely unlikely and would be discountable.**

#### Loss of Foraging Habitat

The Achang Reef Flat Marine Preserve provides foraging habitat for the green sea turtle and the hawksbill sea turtle. This foraging habitat could be degraded or temporarily impacted by various

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<sup>6</sup> Department of Agriculture, Division of Aquatic and Wildlife Resources, Guam (DAWR). 2004. Guam Sea Turtle Recovery Annual Progress Report - March 1, 2004 through August 31, 2004. 9 pp.

<sup>7</sup> Grimm, G. and J. Farley. 2008. Sea Turtle Nesting Activity on Navy Lands, Guam, 2007 – 2008. U.S. Navy, NAVFAC Marianas Environmental, Guam. November 2008. 6 pp.

activities associated with the proposed project. Grading and excavating would be the primary activities that could contribute to the degradation or temporary loss of foraging habitat. The release of sediment into Achang Reef Flat Marine Preserve could occur as the existing abutment walls are demolished and removed, soil behind the existing abutment walls is removed, and new grouted riprap is installed. The sediment released into the Ajayan River could migrate downstream to the Achang Reef Flat Marine Preserve where it would likely disperse and settle on the ocean floor and/or remain suspended in the ocean water. This increase in suspended sediment and sediment deposition within Achang Reef Flat Marine Preserve could damage and /or kill potential food sources for the sea turtles, such as seagrass beds and coral reef communities. Temporary increases in turbidity may also impact habitat quality for foraging sea turtles. However, BMPs have been developed to avoid and minimize impacts to sea turtle foraging habitat as a result of soil erosion, turbidity and/or sediment deposition within the Ajayan River, Ajayan Bay and Achang Reef Flat Marine Preserve. A detailed list of the BMPs that would be implemented for the proposed project is provided in the Avoidance and Minimization Measures section of this document. **Based on this information, FHWA has determined that the loss of potential foraging habitat due to the release of sediment would be discountable and would have insignificant effects on the green and hawksbill sea turtle.**

#### Exposure to Elevated Noise Levels

Several studies have shown that various anthropogenic activities can generate underwater noise levels that can be detected by a marine species within the range of the particular source. Depending on the species and underwater noise frequency, the underwater noise frequency can induce behavioral responses that are potentially damaging to that species. Construction projects adjacent to, and within the ocean is one of the many activities that can produce underwater sound to a level that it causes an adverse impact upon a marine species. Pile driving, such as that employed for this project, is often the construction activity that produces underwater noise frequencies that are potentially harmful to marine species.

Sea turtle hearing research is limited, but available information about sea turtle sensory biology suggests that they are low frequency specialists, with green sea turtles thought to be most acoustically sensitive between 200 and 700 hertz (Hz)<sup>8</sup>. Because the hearing range of green sea turtles overlaps with the expected frequency range of the pile driving signals, NMFS considers it likely that green sea turtles can hear and respond to pile driving noise. Currently, no acoustic thresholds have been established for sea turtles. However, existing research into sea turtle sensory biology suggests that sea turtles are less acoustically sensitive than cetaceans, relying more heavily on visual cues, rather than auditory input<sup>9&10</sup>. Therefore, application of the marine mammal thresholds would be conservative for sea turtles.

Underwater sound pressure levels are often measured and described in terms of the logarithmic decibel (dB) referenced to a baseline of 1 micropascal (re 1  $\mu$ Pa). To assess the potential impacts of an underwater sound on marine resources, NMFS often assesses impacts based on root-mean-square (dB<sub>rms</sub>) of an acoustic pulse. This is the portion of the pulse that contains 90% of the sound pressure.

The current acoustic thresholds used by NMFS for marine mammal Permanent Threshold Shift due to exposure to in-water sounds are  $\geq 180$  dB and  $\geq 190$  dB for cetaceans and pinnipeds, respectively. Exposure to impulsive in-water sounds at  $\geq 160$  dB is the threshold onset of Temporary Threshold Shift

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<sup>8</sup> Ridgway, S. H., E.G. Wever, J.G. McCormick, J. Palin, and J.H. Anderson. 1969. Hearing in the Giant Sea Turtle, *Chelonia mydas*. PNAS, 64, 884-890.

<sup>9</sup> Hazel, J., I.R. Lawler, H. Marsh, and S. Robson. 2007. Vessel speed increases collision risk for the green turtle *Chelonia mydas*. Endangered Species Research 3: 105-113.

<sup>10</sup> Ridgway, S. H., E.G. Wever, J.G. McCormick, J. Palin, and J.H. Anderson. 1969. Hearing in the Giant Sea Turtle, *Chelonia mydas*. PNAS, 64, 884-890.

and behavioral disturbance for all marine mammals. NMFS considers these to be the thresholds for the onset of adverse effects due to acoustic exposures<sup>11</sup>.

An underwater noise analysis was not conducted for the proposed project. Site-specific noise measurements for pile-driving at the Ajayan River are not available. California Department of Transportation's (CALTRANS) *Compendium of Pile Driving Sound Data (Compendium)*<sup>12</sup> was referenced for reporting sound levels that would closely approximate sound levels for similar piles, driven in a similar manner as this action.

The proposed construction of the Ajayan Bridge **would not** require in-water pile driving. A total of twenty-four octagonal 16.5-inch-diameter concrete piles would be installed on the shoreline above the MHW line. Piles would be installed with an impact hammer, which would generate impulsive in-water sounds.

The CALTRANS Compendium reports measured levels for the driving of 24-inch-diameter octagonal piles on land. Impact driving of 24-inch-diameter octagonal piles on land measured 181 dB<sub>rms</sub> at a distance of 10 meters from the source<sup>12</sup>.

In the absence of site specific transmission loss data, the practical spreading loss equation,  $RL = SL - 15\text{Log}R$ , is often used to estimate the RL for actions in shallow nearshore marine waters (RL = received level; SL = source level; and R = range in meters (m)). This equation and the received levels reported in the Compendium as measured at 10 meters for the 24-inch-diameter octagonal concrete piles on land (Table 2).

Piling	Driver	Water Depth	Source Level	Range to 180 dB <sub>rms</sub>	Range to 160 dB <sub>rms</sub>
24" Concrete	Impact	Land	196	12 meters	251 meters

Since the proposed 16.5-inch-diameter concrete piles for the subject project is smaller in diameter than the 24" octagonal piles in the CALTRANS reports cited above, we believe this project will generate lower sound levels in-water and have smaller effect threshold isopleths than the similar pile driving actions presented in Table 2. Considering the relatively low number of sea turtles expected to occur within the project area, relatively minimal proposed pile driving, expected short-range of low sound levels that can cause behavioral disturbance, and a 50-yard (46-meter) shut-down safety range, it is unlikely any sea turtles would be exposed to adverse sound levels produced by pile driving. **Based on this information, FHWA has determined that elevated noise levels due to the pile driving activities would be discountable and would have insignificant effects on the green and hawksbill sea turtles.**

#### Construction Lighting Impacts

Sea turtle hatchlings emerge from their nest at night and haul themselves towards the ocean where they will spend their entire life. Upon emerging from the nest, hatchlings typically orient themselves toward the brightest direction, which on natural, undeveloped beaches is commonly toward the open horizon of the ocean. However, on developed beaches, the brightest direction is often away from the ocean and toward the lighted structures located along the nesting beach habitat. Therefore, sea turtle hatchlings are often disoriented and unable to find the ocean, which often leads to high mortality

<sup>11</sup> National Marine Fisheries Service, Pacific Islands Region, Protected Resources Division. 2014. ESA – Section 7 Consultation, Biological Opinion, United States Department of the Navy, X-Ray Wharf Improvements, Naval Base Guam – NMFS File No. (PCTS): PRI-2013-9309, PIRO Reference No.: I-PI-13-1105-LVA

<sup>12</sup> California Department of Transportation (CALTRANS), 2007. Compendium of Pile Driving Sound Data. Prepared by Illinworth & Rodkin, 505 Petaluma Blvd. South, Petaluma, CA 94952. September 27, 2007.

rates<sup>13</sup>. In addition, artificial lighting may deter the adult female sea turtle from emerging from the ocean to excavate a nest and lay her clutch of eggs.

Although unlikely, construction of the proposed project may require work after daylight hours; thereby, facilitating the need to use artificial lighting to illuminate the proposed project area. The use of artificial lighting after daylight hours could contribute to disorienting sea turtle hatchlings emerging from their nest and/or discourage an adult female sea turtle from emerging from the ocean to excavate a nest and deposit her clutch of eggs. However, if work is required after daylight hours, the potential impact to sea turtles due to artificial lighting would be minimized by the use of sea turtle friendly lighting; thereby, reducing emitted light from the proposed project area. **Based on this information, FHWA has determined that the exposure to construction lighting would be discountable and would have insignificant effects on the green and hawksbill sea turtles.** The FHWA has also reported this information to the USFWS.

#### Increased Exposure to Human Interaction

During project construction, there would be an increased presence of human activity that may result in higher incidents of sea turtle and human interaction. The impacts to sea turtles from human interaction would primarily be associated with behavioral changes in the sea turtles that may include avoiding potentially suitable foraging habitat within the Achang Reef Flat Marine Preserve, abrupt body movements while swimming that could cause injury to the sea turtle and may even result in prolonged inactivity at the bottom of the ocean floor<sup>4</sup>. It is unlikely that the increased human presence at the proposed project site would impact sea turtle nesting behavior given that the closest known nesting site is located approximately one mile (1.6 kilometers) to the northeast of the proposed project. However, BMPs have been developed to avoid and/or minimize the potential impacts to sea turtles from human interaction. Some of the BMPs that would be implemented for the proposed project include performing daily surveys, prior to the commencement of work, to insure sea turtles are not within the work zone; work stoppage upon observing a sea turtle within the proposed project area, allowing it to leave on its own; and limiting activity beyond the work zone. A detailed list of the BMPs that would be implemented for the proposed project is provided in the Avoidance and Minimization Measures section of this document. **Based on this information, FHWA has determined that the exposure to increased human activity would be discountable and would have insignificant effects on the green and hawksbill sea turtles.**

#### Exposure to Elevated Turbidity

Given that sea turtles breathe air instead of water, increased turbidity should not adversely affect their respiration or other biological functions. Although these animals may be found in turbid waters, it is likely that they may avoid dense turbidity plumes in favor of clearer water. However, BMPs have been developed to avoid and minimize elevated turbidity including use of turbidity curtains and erosion and sediment controls. **Based on this information, FHWA has determined that exposure to any plumes of elevated turbidity related to actions of the project will be non-injurious and will result in insignificant effects to green and hawksbill sea turtles.**

#### Exposure to Waste and Discharges

Construction wastes may include plastic trash and bags that may be ingested and cause digestive blockage or suffocation. Large plastic trash and discarded sections of ropes and lines may entangle marine life. Equipment spills and discharges could include hydrocarbon-based chemicals such as fuel oils, gasoline, lubricants, hydraulic fluids and other toxicants, which could expose protected species to

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<sup>13</sup> National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1998. Recovery Plan for U.S. Pacific Population of the Green Turtle (*Chelonia mydas*). National Marine Fisheries Service. Silver Spring, MD.

toxic chemicals. Depending on the chemicals and their concentration, exposure could result in a range of effects, from avoidance of an area to mortality. Local and federal regulations prohibit the intentional discharge of toxic wastes and plastics into the marine environment. In addition, BMPs have been developed to prevent the introduction of wastes and toxicants in the marine environment. Some of the BMPs that would be implemented for the proposed project include use of catchment platforms and protective netting to keep debris from falling into the water; off-site fueling to the extent feasible; storing and staging of construction materials away from the shoreline and river bank; inspection of equipment; readily available spill kits and absorbent pads; and immediate removal of construction debris from the site. A detailed list of the BMPs that would be implemented for the proposed project is provided in the Avoidance and Minimization Measures section of this document. Based on the information, FHWA has determined that discharges of wastes and toxicants are unlikely. Should a discharge occur, appropriate measures would be in place to contain and clean-up the spill. **Based on this information, FHWA has determined that the exposure to wastes and discharges would be discountable and would have insignificant effects on the green and hawksbill sea turtles.**

#### **Candidate Corals Determination of Effect**

The release of sediment into Achang Reef Flat Marine Preserve could occur as the existing abutment walls are demolished and removed, soil behind the existing abutment walls is removed, and new grouted riprap is installed. The sediment released into the Ajayan River could migrate downstream to the Achang Reef Flat Marine Preserve where it would likely disperse and settle on the ocean floor and/or remain suspended in the ocean water. This increase in suspended sediment and sediment deposition within Achang Reef Flat Marine Preserve could damage and /or kill ESA candidate corals. However, BMPs have been developed to avoid and minimize impacts to corals as a result of soil erosion, turbidity and/or sediment deposition within the Achang Reef Flat Marine Preserve. Some of the BMPs that would be implemented for the proposed project include cessation of in water work during the 21 day hard coral spawning period, erosion and sediment controls, and turbidity curtains. A detailed list of the BMPs that would be implemented for the proposed project is provided in the Avoidance and Minimization Measures section of this document. **Based on this information, FHWA has determined that potential impacts to candidate coral species would be avoided.**

#### **Avoidance and Minimization Measures**

To avoid and minimize the potential impacts the proposed project may have upon the federally threatened green sea turtle, federally endangered hawksbill sea turtle and other biological and environmental resource, the FHWA and the DPW have developed numerous BMPs that would be implemented during the life of the proposed project. The BMPs to be implemented and maintained for the proposed project would include, but not limited to, the following:

- The contractor will designate a competent observer to survey the areas adjacent to the proposed action for Green Sea Turtles and Hawksbill Sea Turtles prior to the start of work each day and prior to resumption of work following any break of more than 30 minutes when work is above or in the water when there is a potential to directly impact Green Sea Turtles and Hawksbill Sea Turtles.
- If a Green Sea Turtle or a Hawksbill Sea Turtle is discovered within 50 yards of the proposed work activities with the potential to impact or disturb species shall be postponed or halted. Work shall only begin/resume after the animals have voluntarily departed the area.
- Special attention shall be given to verify that no Green Sea Turtles or Hawksbill Sea Turtles are in areas where equipment or materials are expected to contact the substrate before that equipment may enter the water.

- All objects that are to be placed in the river, such as turbidity curtains, riprap, and excavator bucket, shall be lowered to the bottom in a controlled manner. This can include the use of cranes, winches, or other equipment that affect positive control over the rate of descent to minimize turbidity potential.
- No marine vessels, boats, mooring lines or marker buoys shall be utilized.
- Turbidity curtains and tethers shall be minimum length necessary, and shall remain deployed only as long as needed to properly accomplish the required task.
- Deployment sites shall be devoid of live corals, seagrass beds, or other significant resources.
- Work shall be performed during daylight hours to avoid disorienting nesting sea turtles due to nighttime construction lighting. If work is required after daylight working hours, sea-turtle-friendly lighting shall be used to reduce the brightness of the emitted light.
- From September through April, migratory birds protected under the Migratory Bird Treaty Act of 1917, may use the project site as a foraging, nesting, and resting ground. The protected species must not be harmed or harassed.
- Vegetation (habitat) clearing shall be minimized to the maximum extent possible.
- The contractor must consult with the Guam Division of Aquatic and Wildlife Resources at least 1 week prior to any vegetation removal action.
- Focused bird, tree snail, and bat surveys shall be performed prior to vegetation removal.
- Activities that result in sediment/pollutant discharges shall cease during the 21 day spawning moratorium (starting 7 to 10 days after the July full moon) for the primary hard coral spawning event each year. Contractor will contact NMFS for exact spawning dates.
- The Ajayan Bridge is located in the Achang Reef Flat Marine Protected Area (MPA). No take of marine organisms is allowed within this MPA. Any take to include killing, damaging, or wounding of marine organisms is a violation of local natural resource laws.
- Wetlands will be designated as Environmentally Sensitive Areas where no construction activities, equipment, or personnel are allowed.
- Appropriate materials to contain and clean potential spills shall be stored at the work site and be readily available. All project-related materials and equipment placed in the water shall be free of pollutants.
- The contractor shall perform daily pre-work equipment inspections for cleanliness and leaks. Heavy equipment operations shall be postponed or halted should a leak be detected, and shall not proceed until the leak is repaired and equipment cleaned.
- Off-site fueling sites shall be used to the maximum extent practical. Should fueling of project-related vehicles or equipment need to occur on-site a designated fueling area will be established at least 50 feet from the shoreline, river bank and wetlands. Project personnel shall be trained on proper fueling and fuel spill cleanup procedures.
- Stockpile, staging, and material storage areas shall be kept at least 50 feet from the shoreline, river bank, and wetlands.
- The contractor shall take appropriate precautions in advance of predicted typhoon events to prevent material losses during surge or flood events, such as relocating materials and equipment to be at least 50 feet from the shoreline and river bank.
- Hazardous materials and petroleum products shall be transported, used, and stored on-site in a manner to prevent contamination of soils and water.

- Spill kits including absorbent pads and other materials shall be readily available on-site.
- Turbidity and siltation from project-related work shall be minimized and contained through the appropriate use of erosion-control practices and effective silt containment devices (e.g., silt fencing and turbidity curtains), and the curtailment of work during adverse weather and tidal/flow conditions.
- An Environmental Protection Plan, Erosion Control Plan, Storm Water Pollution Prevention Plan, litter-control plan, Hazard Analysis and Critical Control Point Plan, and project-specific plans shall be prepared, approved by appropriate regulatory agencies, and implemented.
- Solid and sanitary waste disposal procedures and facilities shall be implemented.
- Erosion-control device(s) shall be employed at the job site to prevent debris and soil from entering the river. Device(s) must be secured and able to withstand heavy rains and winds.
- Catchment platforms and protective netting shall be installed under the bridge to keep debris from falling into the water.
- Construction debris must be removed immediately and not stored at the job site. Debris includes excavated soil, cement material, piping, and asphalt.
- Any material or debris removed from the aquatic environment shall be disposed of at upland sites in accordance with applicable laws and regulations.
- Dust-control devices or methodologies (wetting) must be employed at the job site during construction.
- Absorbent pads shall be readily available at the job site during heavy equipment operations, and equipment must be inspected for leaks prior to use.
- Work shall be conducted below the mean high water line during the dry season and low tides when feasible.
- All heavy equipment shall be kept out of the stream bed and disturbance of the existing stream bed shall be avoided.
- Impacts to strand vegetation along the shoreline shall be avoided to minimize beach erosion. Vegetation shall be replaced as soon as possible along both stream banks and shorelines.
- The Nypa palm community upstream of the bridge shall be avoided.
- River corridor access shall be maintained for aquatic species.
- Invasive species controls shall be maintained to ensure that all materials (human-created and natural) transported from off-site are free of such species (e.g., brown tree snake, rhino beetle, invasive plants).

### **Determination of Effects**

The Ajayan Bay and Achang Reef Flat Marine Preserve provide foraging habitat for the federally threatened green sea turtle and the federally endangered hawksbill sea turtle. Ajayan Bay is not a known turtle nesting site. Therefore, sea turtle nesting is not anticipated. However, potentially suitable nesting habitat is present near the project. Given the results of the field surveys, the information provided by the NMFS, the USFWS, and the DAWR, the implementation of BMPs and other avoidance and minimization measures, we have determined that the proposed project ***“may affect, but is not likely to adversely affect”*** the federally threatened green sea turtle or the federally endangered hawksbill sea turtle.

The Achang Reef Flat Marine Preserve may support coral species which are candidates for listing under the ESA. The proposed action has the potential to generate turbidity and sediment which could impact corals. However, with implementation of BMPs and other avoidance and minimization measures, we have determined that the proposed project "*may affect, but is not likely to adversely affect*" candidate coral species.

We trust that we have provided you with the necessary information to evaluate the proposed project and respectfully request your concurrence with our determinations of effect for the federally threatened green sea turtle, the federally endangered hawksbill sea turtle and candidate coral species for ESA listing.

If you require additional information or have any questions, please do not hesitate to contact me via email at [richelle.takara@fhwa.dot.gov](mailto:richelle.takara@fhwa.dot.gov) or via telephone at (866) 233-8177 extension 2311.

Sincerely yours,



Richelle M. Takara, P.E.  
Transportation Engineer

Enclosure:        1) Project Location Map  
                      2) Photo Log  
                      3) Proposed Geotechnical Soil Boring Locations  
                      4) Bridge Profile  
                      5) Traffic Control Plans  
                      6) BMP Drawings  
                      7) Achang Reef Flat Marine Preserve  
                      8) June 2012 Response from NMFS  
                      9) Flora and Fauna Surveys for the Ajayan Bridge Replacement Project

cc:                Carl V. Dominguez, DPW (via email)  
                      Joaquin Blaz, DPW (via email)  
                      Patrick Opay, NMFS (via email)  
                      Don Hubner, NMFS (via email)  
                      Jim Mischler, Parsons Brinckerhoff (via email)  
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**U.S. DEPARTMENT OF COMMERCE**  
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**NATIONAL MARINE FISHERIES SERVICE**  
Pacific Islands Regional Office  
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AUG 21 2014

Ms. Richelle M. Takara, P.E.  
Department of Transportation  
Federal Highway Administration  
Hawaii Federal Aid Division  
300 Ala Moana Blvd., Rm 3-306, Box 50206  
Honolulu, Hawaii 96850

Dear Ms. Takara:

This letter responds to your July 23, 2014 letter regarding the proposal from the U.S. Federal Highway Administration (FHWA) and the Guam Department of Public Works (GDPW) to replace the Ajayan River Bridge on Route 4, Ajayan Bay, on the island of Guam (FHWA Project No. GQ-ER-0004(114)). The letter requested our concurrence under section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. §1531 et seq.), with the FHWA determination that the proposed action is not likely to adversely affect ESA-listed green and hawksbill sea turtles and [proposed for listing] coral species.

Proposed Action/Action Area: The proposed action consists of FHWA funding the project that is described in your letter and its enclosures (FHWA 2014). In summary, contractors would operate land-based heavy equipment to demolish and remove the existing concrete bridge and its abutments. The new abutments would each be installed on 12 new 16.5-inch concrete piles driven between 10 and 20 feet upland from the former abutments along each bank. There would be no in-water pile driving, and in-water excavation would be limited to removal of the existing abutments and re-grading the bank between the existing abutments and the new abutments to a 3H:1V slope. The re-graded slope would be stabilized by grouted stone riprap. All riprap would be installed within the footprint of the original bridge and its abutments. Pre-cast concrete girders would be installed by crane between the new abutments. Temporary formwork would be installed on the girders and the new bridge deck would be cast-in-place. The project also includes some improvements to the adjacent road where it approaches the bridge. The project would take about 15 months to complete, and includes comprehensive best management practices (BMP) that include requirements to minimize and control erosion, sedimentation, and discharges. The action area for this project is estimated to be the in-water area within 50-yards around project-related activities, and the in-water extent of any plumes that may result from mobilized sediments or discharges of wastes or toxic chemicals such as fuels and/or lubricants associated with the machinery used for this activity.



Species That May Be Affected: Based on the project's location, scope, and timing, FHWA determined that the proposed action may affect but is not likely to adversely affect green sea turtles (*Chelonia mydas*) and hawksbill sea turtles (*Eretmochelys imbricata*). FHWA also determined that the proposed action may affect any of the 35 species of corals that have been proposed for listing under the ESA and are found in the waters of Guam. Detailed information to describe the biology, habitat, and conservation status for sea turtles and corals can be found in the recovery plans and other sources at <http://www.nmfs.noaa.gov/pr/species/turtles/>, and <http://www.nmfs.noaa.gov/pr/species/invertebrates/>, respectively.

Critical Habitat: There is no designated or proposed critical habitat under National Marine Fisheries Service (NMFS) jurisdiction within or adjacent to the action area.

Analysis of Effects: In order to determine that a proposed action is not likely to adversely affect listed species, NMFS must find that the effects of the proposed action are expected to be insignificant, discountable, or beneficial as defined in the joint USFWS-NMFS Endangered Species Consultation Handbook: (1) insignificant effects relate to the size of the impact and should never reach the scale where take occurs; (2) discountable effects are those that are extremely unlikely to occur; and (3) beneficial effects are positive effects without any adverse effects (USFWS & NMFS 1998). This standard, as well as consideration of the probable duration, frequency, and severity of potential interactions, was applied during the analysis of effects of the proposed action on ESA-listed and proposed-for-listing marine species, as is described in detail in the FHWA consultation request. In the request, the FHWA determined that the risk of: direct physical impact and loss of forage would be discountable. The FTA further determined that that project-related, disturbance from human interaction, as well as exposure to elevated noise levels, artificial lighting, turbidity, and wastes and discharges would result in insignificant effects.

Based on consideration of the record, NMFS agrees with the FHWA that the proposed action would have insignificant impacts, or the likelihood of impacts would be discountable, for the sea turtles and corals considered in this consultation.

Conclusion: NMFS concurs with your determination that the proposed replacement of the Ajayan River Bridge on route 4, Guam is not likely to adversely affect ESA-listed and proposed-for-listing marine species. Our concurrence is based on the finding that the effects of the proposed action are expected to be insignificant, discountable, or beneficial as defined in the joint USFWS-NMFS Endangered Species Consultation Handbook (USFWS-NMFS 1998) and summarized at the beginning of the Analysis of Effects section above. This concludes your consultation responsibilities under the ESA for species under NMFS's jurisdiction. However, this consultation focused solely on compliance with the ESA. Any additional compliance review that may be required of NMFS for this action (such as assessing impacts on Essential Fish Habitat) would be completed by NMFS Habitat Conservation Division in separate communication, if applicable.

ESA Consultation must be reinitiated if: 1) a take occurs; 2) new information reveals effects of the action that may affect listed species or designated critical habitat in a manner or to an extent not previously considered; 3) the identified action is subsequently modified in a manner causing effects to listed species or designated critical habitat not previously considered; or 4) a new species is listed or critical habitat designated that may be affected by the identified action.

If you have further questions please contact Donald Hubner on my staff at (808) 725-5145. Thank you for working with NMFS to protect our nation's living marine resources.

Sincerely,



Michael D. Tosatto  
Regional Administrator

cc: Dan Polhemus, Aquatic Ecosystems Conservation, USFWS, Honolulu  
Ryan Winn, Regulatory Branch, US Army Corps of Engineers, Honolulu  
Carl Dominguez, Guam Department of Public Works  
Joaquin Blaz, Guam Department of Public Works

NMFS File No. (PCTS): PIR-2014-9523  
PIRO Reference No.: I-PI-14-1203-LVA

### Literature Cited

Federal Highway Administration (FHWA). 2014. ESA consultation request letter, re. Proposed funding to the Guam Department of Public Works to replace the Ajayan River Bridge on Route 4, Guam (FHWA Project No. GQ-ER-0004(114)). U.S. Department of Transportation, FHWA, Honolulu, HI. July 23, 2014. 28 pp.

U.S. Fish and Wildlife Service and National Marine Fisheries Service (USFWS). 1998. Endangered Species Consultation Handbook. Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act.  
[http://www.nmfs.noaa.gov/pr/pdfs/laws/esa\\_section7\\_handbook.pdf](http://www.nmfs.noaa.gov/pr/pdfs/laws/esa_section7_handbook.pdf)

G.8 National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Pacific Islands Regional Office, Habitat Conservation Division – Essential Fish Habitat

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U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Hawaii Federal-Aid Division**

July 29, 2014

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In Reply Refer To:  
HDA-HI

**Mr. Gerry Davis**  
**Assistant Regional Administrator - Habitat Conservation**  
**National Marine Fisheries Service**  
**Pacific Islands Regional Office**  
**NOAA Inouye Regional Center**  
**1845 Wasp Blvd., Building 176**  
**Honolulu, HI 96818**

**Subject: Route 4 Ajayan Bridge Replacement,**  
**Project No. GQ-ER-0004(114)**  
**Essential Fish Habitat Consultation**

Dear Mr. Davis:

The U.S. Department of Transportation, Federal Highway Administration (FHWA), in close coordination with the Guam Department of Public Works (DPW), proposes to replace the existing Ajayan River Bridge located on Route 4, on the boundary between Merizo and Inarajan. A Categorical Exclusion document for compliance with the National Environmental Policy Act (NEPA) is being prepared for the Route 4 Ajayan Bridge Replacement Project (Project No. GQ-ER-0004(114)).

We are contacting you to initiate consultation regarding Essential Fish Habitat (EFH) for the above-referenced project.

#### **Ajayan Bridge Existing Condition**

The Ajayan Bridge is located on Route 4 on the boundary between Merizo and Inarajan. The bridge provides two lanes that cross the Ajayan River just upstream of the river mouth as it enters the ocean (Enclosure 1 – Project Location Map).

The existing single-span cast-in-place concrete box girder bridge was constructed in 1968, with a span length of approximately 76.2 feet and a skew of 40 degrees. Abutments are founded on concrete piles; the deck has an asphalt concrete wearing surface. The most recent bridge inspection report, dated May 27, 2004, noted that the substructure and channel are rated in serious condition. The damage noted includes cracking and differential movement of substructure units and significant scour at abutments (Enclosure 2 – Photo Log).

#### **Project Description**

The existing bridge will be demolished and replaced with a new 40-foot-wide by 105-foot-long bridge. The proposed improvements include two 12-foot-wide lanes and two 8-foot-wide paved shoulders. Roadway alignment and grade will match the existing at the point of tie-in.

To accommodate traffic while the new bridge is being constructed, the bridge will be demolished in two phases, demolishing one side (longitudinally) of the bridge at a time. This will allow two-way traffic (one lane, controlled by traffic lights) to use the bridge during demolition and construction.

The project will entail the demolition and removal of the existing bridge structure and existing pile caps. The existing piles below the waterline will be cut and capped at the mudline, but left in-place. This will provide for minimal disturbance of the aquatic ecosystem. Roadway work within the project limits will include removal of the existing pavement, full-depth pavement replacement, and replacement of the guardrails. The proposed action will also include geotechnical sampling, testing, and analysis. As shown in Enclosure 3 – Proposed Geotechnical Soil Boring Locations, soil borings for bridge foundations will be taken at two locations, one at each proposed substructure unit, to a depth of at least 100 feet or at least 10 feet into competent bedrock, whichever is shallower. Additionally, two shallow borings to a depth of 15 feet will be taken within the roadway approach area.

## **Demolition and Construction Methods**

### Demolition

Bridge demolition will include removal of the existing bridge deck, box beam, abutments, wing walls, guardrails, and parapet. The existing bridge is approximately 29.6 feet wide and will be demolished in two phases to allow for one lane to remain open for traffic. Phase 1 will include saw-cutting the westbound portion of the existing bridge and removing it by crane. Phase 2 will include the same actions to the eastbound portion of the existing bridge. Before demolition and removal, a temporary concrete barrier will be installed on the existing bridge, and existing utilities will be temporarily relocated to the opposite portion of the bridge during each phase.

Demolition of the existing abutment walls will be accomplished by use of jackhammers and/or hoe rams, and removed via mechanical equipment such as a backhoe. The existing bridge abutments will be demolished and the existing piles will be cut down to the river bed. The soil between the old abutment and new abutment will be excavated, and 48-inch-thick grouted riprap will be placed on a gradual slope from the new abutment to the remaining old pilings (Enclosure 4 – Bridge Profile). A combined total of approximately 540 cubic yards of soil and concrete abutment wall material will be excavated from below the mean high water (MHW) line of the Ajayan River. The combined total linear disturbance to the stream channel from the excavation of the soil and concrete abutment wall material will be approximately 407 linear feet.

### Construction

Construction of the new bridge will also be performed in two phases so that two-way signal-controlled traffic can be maintained in one lane during construction. Phase 1 will include demolition of the existing westbound portion of the bridge and construction of the new westbound portion of the bridge. During Phase 1, utilities and two-way signal-controlled traffic will be temporarily relocated to the eastbound portion of the existing bridge. Phase 2 will include demolition of the existing eastbound portion of the bridge and construction of the new eastbound portion of the bridge. During Phase 2, utilities will be permanently installed in the westbound portion of the new bridge, and two-way signal-controlled traffic will be temporarily relocated to the westbound portion of the new bridge. Work areas for Phase 1 and Phase 2 are shown in Enclosure 5 – Traffic Control Plans.

A new bridge foundation will be constructed inland, or behind, the existing abutment to minimize disturbance to the river channel. The proposed abutments will be set back from the existing abutments. The soil and grouted riprap between the remaining existing piles and the new abutment will be sloped back at a 3H:1V ratio. The two new abutments will be constructed at the top of the slope and supported by twelve piles (per abutment), for a combined total of twenty-four new octagonal 16.5-inch-diameter

concrete piles (100 tons per pile). The new abutments and abutment piles will be constructed above the MHW line.

Approximately 947 cubic yards of grouted stone riprap will be placed along the abutment walls, below the MHW line, to protect the abutment from erosion caused by waves. The riprap (fill material) will be placed along approximately 401 linear feet of stream channel. The riprap will be placed within the excavation footprint and will not impact additional areas of the stream channel.

#### Best Management Practices

Best management practices (BMPs) will include catchment platforms and protective netting, silt screen fences, and turbidity curtains. Catchment platforms and protective netting will be installed under the bridge to keep debris from falling into the water. Silt screen fences will be placed at the slope toe around the river edges to prevent erosion and rubbish from going into the water. Turbidity curtains will be installed at both river banks surrounding the work areas to prevent the spread of silt and sediment into the river and bay (Enclosure 6 – BMP Drawings).

#### **Natural Environments**

The proposed project is located within the southern end of Guam, which is characterized by hilly volcanic slopes descending from approximately 800 feet in elevation to sea level over distances of less than 2.5 miles. The project site is situated between the Inarajan and Manell watersheds. The Ajayan Bridge is situated on the southern end of the Ajayan River, adjacent to the Ajayan Bay discharge point. Flora and fauna surveys of the proposed project area were conducted by SWCA Environmental Consultants (SWCA) on November 6 and 7, 2013. During these surveys, emphasis was placed on identifying special-status species. The following paragraphs describe the existing terrestrial and aquatic environments that occur within the proposed project area as reported by SWCA and Guam Department of Agriculture, Division of Aquatic and Wildlife Resources (DAWR).

#### Terrestrial Ecology

Forest surrounding the project area consists mostly of secondary thicket/scrub forest with some ravine forest. Areas of forested palustrine wetlands are located along the east and west banks of the Ajayan River. Several typhoons that occurred between the 1970s and 1990s changed the vegetation in the area dramatically. Site visits conducted by Guam DAWR staff in February and March 2013 found that pogo (*Hibiscus tiliaceus*) and tangantangan (*Leucaena leucocephala*) were the two common species in the project area.

During flora surveys performed by SWCA on November 6 and 7, 2013, a total of 19 plants were identified to either genera or species. The seven native plants documented consisted of five trees (pago, *Pandanus tectorius*, *Bougainvillea glabra*, *Callicarpa candicans*, and *Morinda citrifolia*), one fern (*Polypodium scolopendria*), and one grass (*Saccharum spontaneum*). The non-native plants documented were pagua (*Areca catechu*), coconut trees (*Cocos nucifera*), beggar's tick (*Bidens alba*), Siam weed (*Chromolaena odorata*), mile-a-minute vine (*Mikania scanden*), daok (*Calophyllum inophyllum*), papaya (*Carica papaya*), tangantangan, kamachile (*Pithecellobium dulce*), and *Musa* sp.

#### Shoreline Ecology

The project area is located at the mouth of the Ajayan River as it discharges into Achang Reef Flat. The shoreline vegetation is composed primarily of coconut trees, pogo, and tangantangan.

Although not located within the boundaries of the project area, a small *Nypa* palm (*Nypa fruticans*) (also referred to as "Nipa") community was identified approximately 10 meters upstream of the Ajayan River. This species is a wetland obligate and grows in brackish marshes.

### Aquatic Ecology

The Ajayan River flows south and discharges at the Ajayan Bay. The Ajayan Bay includes the eastern portion of the Achang Reef Flat Marine Preserve (Enclosure 7 – Achang Reef Flat Marine Preserve). The Ajayan River channel cuts completely through the reef flat at Ajayan Bay. The reef flat consists of inner and outer reef flats that are exposed at low tide. Mangroves and sea grass beds are present in the vicinity of the project site.

According to the University of Guam Marine Laboratory's Guam Coastal Atlas ([www.guammarinelab.com/coastal.atlas/htm/Maps.htm](http://www.guammarinelab.com/coastal.atlas/htm/Maps.htm)), the benthic habitat of the river channel is composed of "sand, uncolonized 90% to 100%", extending from inland waters to 500 meters offshore. The benthic habitat to the east of the channel is composed of "spur and groove, coral 10% to <50%" near the shore, and "pavement, turf 50% to <90%" after approximately 100 meters offshore. The benthic habitat to the west of the channel is composed of "spur and groove, coral 50% to <90%" near the shore, and "pavement, coral 10% to <50%" after approximately 50 meters offshore.

The Achang Reef Flat supports primarily hard corals. Only limited cover of two soft coral species have been identified by the University of Guam Marine Lab during monitoring of the site.

Achang Reef Flat is classified as M-1, Excellent. Waters in this category are suitable for whole-body contact and recreation. These waters are also needed for research and to ensure the preservation and protection of marine life, including coral, reef-dwelling organisms, fish, and related resources, and aesthetic enjoyment. The surface waters of the Ajayan River are classified as S-3, Low. Waters in this category are used primarily for commercial, agriculture, or industrial activity. Aesthetic enjoyment and recreational body contact are limited. Maintenance of aquatic life is also limited.

Four sea turtle species occur in the coastal waters surrounding Guam. The green sea turtle (*Chelonia mydas*) and loggerhead sea turtle (*Caretta caretta*) are federally and locally listed as threatened. The Hawksbill sea turtle (*Eretmochelys imbricate*) and leatherback sea turtle (*Dermochelys coriacea*) are federally and locally listed as endangered. Turtle nesting areas have been identified at Ritidian National Wildlife Refuge, Haputo, Urunao, Tumon Bay, Cabras Island, Spanish Steps, Cocos Island, Acho Bay, Nomña Bay, Jinapsan, Tarague Beach, and the waterfront annex of Naval Base Guam. Acho Bay is located approximately one mile (1.6 kilometers) from the project site. Turtle nesting areas are not present at the project site; however, sea turtles have been observed foraging in Ajayan Bay.

### **Compliance with the Marine Mammal Protection Act**

The Marine Mammal Protection Act (MMPA) prohibits, with certain exceptions, the "take" of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the U.S. All marine mammals are protected under the MMPA. Under the MMPA, take is defined as "harass, hunt, capture, kill, or collect, or attempt to harass, hunt, capture, kill, or collect."

Of the animals listed in Enclosure 8 – Marine Protected Species of the Mariana Islands that could occur within the waters off Guam, humpback whales (*Megaptera novaeangliae*) and sperm whales (*Physeter macrocephalus*) are protected species under the Endangered Species Act and MMPA. Spinner dolphins (*Stenella longirostris*) are also known to occur in nearshore waters around Guam, but are protected under the MMPA only.

### **Compliance with Magnuson Stevens Act – Essential Fish Habitat**

The Magnuson-Stevens Fisheries Conservation and Management Act 1976 was implemented to conserve and manage fishery resources, encourage and support international fishery agreements, promote responsible commercial and recreational fishing, and provide for fishery management

planning. In 1996, the act was amended to address protection, conservation, and enhancement of fish habitat. The 2009 Fishery Ecosystem Plan (FEP) for the Mariana Archipelago addresses managing EFH in four place-based categories: Bottom Fish and Seamount Management Unit Species (MUS), Crustacean MUS, Precious Coral MUS, and Coral Reef Ecosystem MUS.

The FEP for the Mariana Archipelago states that the Western Pacific Regional Fishery Management Council defines the Mariana Archipelago FEP boundary as including all waters and associated marine resources within the 200-mile Exclusive Economic Zone (EEZ) surrounding the Northern Mariana Islands and Guam. This implies inclusion of species under the Pacific Pelagic MUS managed under the Pacific Pelagic FEP. EFH is subsequently defined as those waters and substrate, within the EEZ, necessary for fish to spawn, breed, or growth to maturity.

### **Project Effects on Essential Fish Habitat**

#### Bottom Fish and Seamount MUS

Areas considered EFH for adult and juvenile bottom fish are the water column and bottom habitat extending from the shoreline to a depth of 400 meters, encompassing steep drop-offs and high-relief habitats. EFH for bottom fish eggs and larvae is defined as the water column from the shoreline to the outer boundary of the EEZ (200 miles) to a depth of 400 meters.

Species in this management unit are reported to be concentrated on the steep slopes of deep-water banks. Banks and seamounts occur on the continental shelf and in oceanic waters. In general, the deep-water bottom fish species included in this unit occur at great distances from the project site. However, some shallow-water bottom fish (0 to 100 meters), such as the giant trevally (*Caranx ignobilis*), are known to use mangrove/estuarine environments at different stages in their life cycle.

Project activities would not measurably impact, directly or indirectly, preferred habitat for the species included in the Bottom Fish and Sea Mount MUS, provided routine in-water/near-water-related construction BMPs to safeguard water quality and the environment are employed. Therefore, a ***no-adverse-effect*** determination is recommended relative to the proposed project and its potential to impact EFH for the Bottom Fish and Sea Mount MUS.

#### Crustacean MUS

EFH for the Crustacean MUS is subdivided into three main groups; (1) deepwater shrimp, (2) spiny and slipper lobster complex, and (3) Kona crab.

EFH for deepwater shrimp for eggs and larvae is the water column on the outer reef slopes between 550 and 700 meters in depth. For juvenile and adult deepwater shrimp it is defined as the outer reef slopes between 300 and 700 meters in depth. Project activities within or near the Ajayan River would not affect EFH for deepwater shrimp.

EFH for spiny and slipper lobster complex and Kona crab consists of the water column from the shoreline to the EEZ to a depth of 150 meters (eggs and larvae) and from the shoreline to a depth of 100 meters (juveniles and adults). Banks with summits less than 30 meters from the surface have been designated as Habitat Areas of Particular Concern for the spiny and slipper lobster complex and Kona crab. These banks have been shown to support recruitment of juvenile spiny lobster, provide ecological function, and are a rare habitat type susceptible to human-induced degradation. Spiny lobsters are typically found in rocky substrate in well-protected areas. These lobsters are typically found in association with coral reefs, inhabiting the rocky shelters of windward surf zones and moving on to the reef flat at night to forage.<sup>1</sup>

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<sup>1</sup> Western Pacific Regional Fishery Management Council. 2009. Fishery Ecosystem Plan for the Mariana Archipelago. Western Pacific Regional Fishery Management Council, Honolulu, Hawaii.

The project area and nearby banks of Ajayan Bay have banks with summits less than 30 meters. Project activities including excavation and fill of the stream channel would directly affect Crustacean MUS Habitat Areas of Particular Concern. Elevated turbidity resulting from in-water shoreline excavation and fill activities can also result in temporary indirect impacts to water quality of EFH for spiny and slipper lobster complex and Kona crab. In addition, potential indirect impacts to Coral Reef Ecosystem MUS described below, can affect crustaceans which forage on the reef flat.

Although there may be an effect to the EFH for the Crustacean MUS, the project will likely not adversely affect EFH given that routine in-water/near-water-related construction BMPs will be used to safeguard water quality and the environment. Therefore, a determination of *may adversely affect* Crustacean MUS EFH is recommended.

#### Precious Coral MUS

According to the FEP for the Mariana Archipelago, precious coral species are found in marine waters between 10 and 750 fathoms (19 and 1372 meters). The project vicinity does not feature the depth, bottom substrate, or current/water quality conditions conducive to precious coral growth. There are no known precious coral beds, such as those identified in Hawaiian waters, in the waters around Guam. No Precious Corals MUS EFH has been established in the Mariana Archipelago. Consequently, a *no-adverse-effect* determination is recommended relative to the proposed project and its potential to impact EFH for the Precious Coral MUS.

#### Coral Reef Ecosystem MUS

EFH has been defined for the Coral Reef Ecosystem MUS as being the water column and all benthic substrate to a depth of 50 fathoms (41 meters) from the shoreline to the outer limit of the EEZ. Most coral reef ecosystem taxa use estuarine environments, seagrass beds, and mangrove habitats (Nypa palm communities are considered a type of mangrove complex) during juvenile, adult, and spawning life stages.

The proposed project will not alter the Nypa palm community directly upstream of the bridge. No new permanent bridge supporting structures will be constructed in the water, and, thus, the permanent in-water bridge footprint will not be changed. Existing piles in the water will be cut, capped, and left in-place. Should temporary in-water piles be required to support falsework during construction, the piles will be completely removed. Benthic habitat will not be permanently altered. Therefore, the construction will not constitute barriers to Coral Reef Ecosystem MUS species. There will be no direct destruction of or impacts to mangrove, seagrass beds, or living coral.

Elevated turbidity resulting from in-water shoreline excavation and fill activities can result in indirect impacts to seagrass and coral. Seagrass and coral are dependent on water quality, water clarity, and light penetration. Water quality in the river, the adjacent Nypa palm community, seagrass beds, coral reef, and the bay waters at the river mouth must be protected from significant sources of pollution, sedimentation, and turbidity. This will be accomplished through the use of construction BMPs to safeguard water quality and the environment. The use of screens and nets to catch any debris and the use of turbidity curtains to isolate active near-water and in-water work areas will significantly mitigate potential water-quality impacts. Strict adherence to standard BMPs for in-water and near-water work will help mitigate the threat of pollution to the water column, including the introduction of sediment and turbidity, during bridge construction and demolition activities. Therefore, given the implementation of the BMPs mentioned above, a *determination of may adversely affect the* Coral Reef Ecosystem MUS EFH is recommended.

### Pacific Pelagic MUS

EFH for the numerous pelagic species can be considered broadly and includes virtually all offshore marine waters adjacent to Guam. Although the majority of species in the Pacific Pelagic MUS typically are found in deeper waters, several may use shallower waters during different life stages. With a few exceptions, most of these species forage within the water column and rarely feed off the bottom. The proposed bridge replacement project site and adjacent areas are not considered EFH for the Pacific Pelagic MUS. Consequently, a **no-adverse-effect** determination is recommended relative to the proposed project and its potential to impact EFH for the Pacific Pelagic MUS.

### Habitat Areas of Particular Concern

Habitat Areas of Particular Concern (HAPC) are identified as those areas within EFH that are essential to the life cycle of important coral species. Five HAPC have been established in Guam: Cocos Lagoon, Orote Point Ecological Reserve Area (ERA), Haputo ERA, Ritidian Point, and Jade Shoals in Apra Harbor. The proposed project area and adjacent waters are spatially separated from these HAPC resources. Therefore, a **no-adverse-effect** determination is recommended relative to the proposed project and its potential to impact an HAPC.

### **Agency Coordination**

On May 31, 2012, AECOM requested species information from the U.S. Fish and Wildlife Service (USFWS) regarding the potential presence of protected species occurring within the proposed project area. On June 12, 2012, USFWS responded to an AECOM request via email, recommending that a survey be conducted for Mariana common moorhen (*Gallinula choropus guami*) and that it be determined if sea turtle nesting beaches are located near the project area. USFWS also noted that there is no proposed or designated critical habitat in the vicinity of the proposed project area.

The DAWR was consulted on this project. In addition to comments about birds and terrestrial species, the DAWR also noted that there is a potential for sea turtles to occur in the waters near the project area. There is also a small strand of beach near the bridge where turtles could potentially come ashore, although it is not a known turtle nesting site. DAWR requested a survey be performed for the presence/absence of special-status species.

In addition, at AECOM's request for species information, the National Marine Fisheries Service (NMFS) provided documentation, via email dated June 4, 2012, regarding the federally threatened and endangered species (i.e., protected species) known to occur and/or potentially known to occur within the proposed project area. In the correspondence, Donald Hubner, NMFS Endangered Species Biologist – Pacific Islands Regional Office, stated that the only federally protected species under NMFS jurisdiction that is likely to occur at or near the proposed project area is the threatened green sea turtle and the endangered hawksbill sea turtle.

On September 5, 2012, as advised by Donald Hubner, AECOM contacted Valerie Brown, NMFS Fishery Biologist – Pacific Islands Regional Office/Guam Field Office, via telephone to discuss species of concern and EFH in the project area. Valerie Brown provided and suggested AECOM review the EFH consultation letter and NMFS recommendations for the Agfayan Bridge Project. For further coordination, a description of the Ajayan Bridge Project was provided to Donald Hubner and Valerie Brown.

At AECOM's request, Valerie Brown provided resources for an ecological description and information regarding EFH in the project area, via email dated May 6, 2013.

Ms. Brown noted:

1. The project site is in the Achang Reef Flat Marine Preserve, which includes significant fish population dependent on healthy habitat.

2. The project site is EFH for all of the MUS for the Western Pacific, but coral reef and crustacean MUS are the most likely to be impacted by this project.
3. The project site includes an estuary, seagrass beds, and coral reefs. The seagrasses and corals can be significantly impacted by sediment and project design, phasing, and BMPs should have a strong focus on preventing sediment impacts to the adjacent habitats.

As requested by the various agencies, flora and fauna surveys were completed for this project. SWCA performed the flora and fauna survey and their report is included as Enclosure 9 – Flora and Fauna Surveys for the Ajayan Bridge Replacement Project.

### **Avoidance and Minimization Measures**

To avoid and minimize potential impacts, the FHWA and DPW developed numerous BMPs that will be implemented for the proposed project. Drainage concepts will conform to the Guam Transportation Stormwater Manual. BMPs will be required to control erosion during construction, including catchment platforms, protective netting, silt screen fences, and turbidity curtains. The BMPs are shown in the figures in Enclosure F. Additional BMPs are detailed in Table 1. These BMPs include recommendations from agency consultations to-date (i.e. USFWS, NMFS, and Guam DAWR).

### **Project BMPs and Avoidance & Mitigation Measures**

- The contractor will designate a competent observer to survey the areas adjacent to the proposed action for Green Sea Turtles and Hawksbill Sea Turtles prior to the start of work each day and prior to resumption of work following any break of more than 30 minutes when work is above or in the water when there is a potential to directly impact Green Sea Turtles and Hawksbill Sea Turtles.
- If a Green Sea Turtle or a Hawksbill Sea Turtle is discovered within 50 yards of the proposed work activities with the potential to impact or disturb species shall be postponed or halted. Work shall only begin/resume after the animals have voluntarily departed the area.
- Special attention shall be given to verify that no Green Sea Turtles or Hawksbill Sea Turtles are in areas where equipment or materials are expected to contact the substrate before that equipment may enter the water.
- All objects that are to be placed in the river, such as turbidity curtains, riprap, and excavator bucket, shall be lowered to the bottom in a controlled manner. This can include the use of cranes, winches, or other equipment that affect positive control over the rate of descent to minimize turbidity potential.
- No marine vessels, boats, mooring lines or marker buoys shall be utilized.
- Turbidity curtains and tethers shall be minimum length necessary, and shall remain deployed only as long as needed to properly accomplish the required task.
- Deployment sites shall be devoid of live corals, seagrass beds, or other significant resources.
- Work shall be performed during daylight hours to avoid disorienting nesting sea turtles due to nighttime construction lighting. If work is required after daylight working hours, sea-turtle-friendly lighting shall be used to reduce the brightness of the emitted light.
- From September through April, migratory birds protected under the MBTA of 1917, may use the project site as a foraging ground. The protected species must not be harmed or harassed.

- Activities that result in sediment/pollutant discharges shall cease during the 21 day spawning moratorium (starting 7 to 10 days after the July full moon) for the primary hard coral spawning event each year. Contractor will contact NMFS for exact spawning dates.
- In-water work shall stop during coral spawning.
- The Ajayan Bridge is located in the Achang Reef Flat Marine Protected Area (MPA). No take of marine organisms is allowed within this MPA. Any take to include killing, damaging, or wounding of marine organisms is a violation of local natural resource laws.
- Appropriate materials to contain and clean potential spills shall be stored at the work site and be readily available. All project-related materials and equipment placed in the water shall be free of pollutants.
- The contractor shall perform daily pre-work equipment inspections for cleanliness and leaks. Heavy equipment operations shall be postponed or halted should a leak be detected, and shall not proceed until the leak is repaired and equipment cleaned.
- Off-site fueling sites shall be used to the maximum extent practical. Should fueling of project-related vehicles or equipment need to occur on-site a designated fueling area will be established at least 50 feet from the shoreline, river bank and wetlands. Project personnel shall be trained on proper fueling and fuel spill cleanup procedures.
- Stockpile, staging, and material storage areas shall be kept at least 50 feet from the shoreline, river bank, and wetlands.
- The contractor shall take appropriate precautions in advance of predicted typhoon events to prevent material losses during surge or flood events, such as relocating materials and equipment to be at least 50 feet from the shoreline and river bank.
- Hazardous materials and petroleum products shall be transported, used, and stored on-site in a manner to prevent contamination of soils and water.
- Spill kits including absorbent pads and other materials shall be readily available on-site.
- Turbidity and siltation from project-related work shall be minimized and contained through the appropriate use of erosion-control practices and effective silt containment devices (e.g., silt fencing and turbidity curtains), and the curtailment of work during adverse weather and tidal/flow conditions.
- An Environmental Protection Plan, Erosion Control Plan, Storm Water Pollution Prevention Plan, and project-specific plans shall be prepared, approved by appropriate regulatory agencies, and implemented.
- Solid and sanitary waste disposal procedures and facilities shall be implemented.
- Erosion-control device(s) shall be employed at the job site to prevent debris and soil from entering the river. Device(s) must be secured and able to withstand heavy rains and winds.
- Construction debris must be removed immediately and not stored at the job site. Debris includes excavated soil, cement material, pipings, and asphalt.
- Dust-control devices or methodologies (wetting) must be employed at the job site during construction.
- Absorbent pads shall be readily available at the job site during heavy equipment operations, and equipment must be inspected for leaks prior to use.

- Work shall be conducted below the mean high water line during the dry season and low tides when feasible.
  - All heavy equipment shall be kept out of the stream bed and disturbance of the existing stream bed shall be avoided.
  - Impacts to strand vegetation along the shoreline shall be avoided to minimize beach erosion. Vegetation shall be replaced as soon as possible along both stream banks and shorelines.
  - Vegetation (habitat) clearing shall be minimized to the maximum extent possible.
- 
- The contractor must consult with the Guam Division of Aquatic and Wildlife Resources at least 1 week prior to any vegetation removal action.
  - The Nypa palm community upstream of the bridge shall be avoided.
  - River corridor access shall be maintained for aquatic species.
  - Invasive species controls shall be maintained to ensure that all materials (human-created and natural) transported from off-site are free of such species (e.g., brown tree snake, rhino beetle, invasive plants).

The determinations of effect on EFH for federally managed species is based on information reviewed for EFH within the range of influence of the proposed project and in coordination with Ms. Valerie Brown.

We trust that we have provided you with the necessary information to evaluate the proposed project and respectfully request your concurrence with the determination of effects as outlined above. Furthermore, given the information provided and based on the determination of effects for EFH, we request for an abbreviated EFH consultation with NMFS for this project. We look forward to your response.

If you require additional information or have any questions, please contact me at (808) 541-2311 or [richelle.takara@fhwa.dot.gov](mailto:richelle.takara@fhwa.dot.gov).

Sincerely yours,



Richelle M. Takara, P.E.  
Transportation Engineer

Enclosure:

- 1) Project Location Map
- 2) Photo Log
- 3) Proposed Geotechnical Soil Boring Locations
- 4) Bridge Profile
- 5) Traffic Control Plans
- 6) BMP Drawings
- 7) Achang Reef Flat Marine Preserve
- 8) June 2012 Response from NMFS
- 9) Flora and Fauna Surveys for the Ajayan Bridge Replacement Project

cc: Carl V. Dominguez, DPW (via email)  
Joaquin Blaz, DPW (via email)  
Patrick Opay, NMFS (via email)  
Don Hubner, NMFS (via email)  
Jim Mischler, Parsons Brinckerhoff (via email)  
Nora Camacho, Parsons Brinckerhoff (via email)  
Nemencio Macario, N.C. Macario (via email)

RT \_\_\_\_\_

**RECEIVED**  
**MAY 18 2015**  
**HAWAII DIVISION**



**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Pacific Islands Regional Office  
1845 Wasp Blvd., Bldg 176  
Honolulu, Hawaii 96818  
(808) 725-5000 • Fax: (808) 973-2941

Ms. Richelle Takara  
Federal Highway Administration  
Hawaii Federal-Aid Division  
300 Ala Moana Blvd, Rm 3-306  
Box 50206  
Honolulu, HI 96850

May 13, 2015

Dear Ms. Takara:

The National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) has reviewed the project material provided by the U.S. Department of Transportation, Federal Highway Administration (FHWA), for the Ajayan Bridge Replacement Project (Project No. GQ-ER-0004(114)), on the boundary between Merizo and Inarajan, Guam. We appreciate the opportunity to provide the following comments in accordance with the EFH provision §305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA; 16 USC §1855) and the Fish and Wildlife Coordination Act (FWCA).

This project will demolish the existing bridge and replace it with a new 40-foot-wide by 105-foot-long Bridge. Roadway alignment and grade will match the existing at the point of tie-in. To accommodate traffic while the new bridge is being constructed, the bridge will be demolished in two phases, demolishing one side (longitudinally) of the bridge at a time. This will allow two-way traffic (one lane, controlled by traffic lights) to use the bridge during demolition and construction. The project will entail the demolition and removal of the existing bridge structure and existing pile caps. The existing piles below the waterline will be cut and capped at the mudline, but left in-place to minimize disturbance of the aquatic ecosystem. Roadway work within the project limits will include removal of the existing pavement, full-depth pavement replacement, and replacement of the guardrails. The proposed action will also include geotechnical sampling, testing, and analysis.

During the demolition phase of the project, the existing bridge abutments will be demolished and the existing piles will be cut down to the river bed. The soil between the old abutment and new



abutment will be excavated, and 48-inch-thick grouted riprap will be placed on a gradual slope from the new abutment to the remaining old pilings. A combined total of approximately 540 cubic yards of soil and concrete abutment wall material will be excavated from below the mean high water (MHW) line of the Ajayan River. The combined total linear disturbance to the stream channel from the excavation of the soil and concrete abutment wall material will be approximately 407 linear feet. A new bridge foundation will be constructed inland of the existing abutment to minimize disturbance to the river channel. The soil and grouted riprap between the remaining existing piles and the new abutment will be sloped back at a 3H:1V ratio. The two new abutments will be constructed at the top of the slope and supported by twelve piles (per abutment), for a combined total of twenty-four new octagonal 16.5-inch-diameter concrete piles (100 tons per pile). The new abutments and abutment piles will be constructed above the MHW line. Approximately 947 cubic yards of grouted stone riprap will be placed along the abutment walls, below the MHW line, to protect the abutment from erosion caused by waves. The riprap (fill material) will be placed along approximately 401 linear feet of stream channel. The riprap will be placed within the excavation footprint and will not impact additional areas of the stream channel.

NMFS appreciates FHWA's efforts to consult with us early on this project to minimize the predicted direct impact to our trust resources. Despite these efforts, we determine that adverse effects to EFH will still occur. As such, we offer the following comments in accordance with the EFH provision of the MSA (50 C.F.R. § 600.905 – 930), also the National Environmental Policy Act (42 U.S.C. 4321 et seq.),

#### **Magnuson-Stevens Act**

Pursuant to the MSA, the Secretary of Commerce, through NMFS, is responsible for the conservation and management of fishery resources found off the coasts of the United States. See 16 U.S.C. 1801 *et seq.* Section 1855(b)(2) of the MSA requires federal agencies to consult with NMFS, with respect to "any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency that may adversely affect any essential fish habitat identified under this Act." The statute defines EFH as "those waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity." 16 U.S.C. 1802(10). Adverse effects on EFH are defined further as "any impact that reduces the quality and/or quantity of EFH," and may include "site-specific or habitat-wide impacts, including individual, cumulative or synergistic consequences of actions." 50 C.F.R. § 600.810(a). The consultation process allows NMFS to make a determination of the project's effects on EFH and provide Conservation Recommendations to the lead agency on actions that would adversely affect such habitat. See 16 U.S.C. 1855(b)(4)(A).

## Essential Fish Habitat

The marine water column, seafloor, and tidally influenced stream areas in the project area are designated as Essential Fish Habitat (EFH) and support various life stages for the management unit species (MUS) identified under the Western Pacific Regional Fishery Management Council's Pelagic and Mariana Archipelago Fishery Ecosystem Plans (FEPs). The MUS and life stages that may be found in these waters include: eggs, larvae, juveniles and adults of Coral Reef Ecosystem MUS (CRE-MUS) and eggs, larvae, juveniles and adults of Crustacean MUS (CMUS).

The Ajayan River mouth is located within the Achang Reef Flat Marine Preserve. According to Guam Code Annotated Chapter 63 §63116.1, "The purpose of the marine preserve is to protect, preserve, manage, and conserve aquatic life, habitat, and marine communities and ecosystems, and to ensure the health, welfare and integrity of marine resources for current and future generations by managing, regulating, restricting, or prohibiting activities to include, but not limited to, fishing, development, human uses." The preserve was established by law in 1997 and first enforced in 2001, since that time the reef fish populations have increased.

Unlike previous bridge projects at Acfayan and Ylig, the coral zone starts less than 200 meters (m) from the project site, with highly diverse coral areas found within 400 m of the project site. Stormwater runoff and sedimentation from this bridge project are more likely to reach important habitat areas. The sea grass beds and reef flat areas provide important juvenile habitat for popular food fish species such as *Lethrinus harak*, *Leptoscarus vaigiensis*, *Siganus spinus*, and *S. argenteus*. The reef margin has a diverse coral assemblage.

## EFH Conservation Recommendations

NMFS PIRO finds that this action **Would Adversely Affect EFH** through temporary water quality impairments, including an increase in turbidity and sedimentation, during the project. NMFS PIRO recommends pursuant to Section 305(b)(4)(A) of the Magnuson-Stevens Act that FHWA, DPW, and their contractors include the following Conservation Recommendations in the Ajayan Bridge Project to avoid and minimize these impacts to coral reef resources and EFH:

1. Ensure strict adherence to the BMPs listed in your consultation letter. Recent projects at Acfayan and Ylig did not fully comply with BMPs. Sensitive EFH is much closer to this project site and will be impacted by any runoff and sedimentation from this project. Regular site inspections for compliance with BMPs is advised.
2. Due to the close proximity of the reef and important EFH, we strongly urge FHWA to use an adaptive management strategy for managing construction and operation impacts related

to sediments and water quality. To assist this, we recommend that FHWA employ real time turbidity monitoring at various depths, in addition to visual assessments of turbidity, to ensure timely interaction to prevent sediment impacts to sensitive habitats. Sensors should be placed near the bottom, at mid depth, and 1m below surface both upstream (reference site) and downstream of the project area. Per Guam Water Quality Standards the turbidity should not increase over 1 NTU over the reference site. Frequent monitoring allows the construction team to change speed, methods, check curtains, etc. in time to avoid impacts to nearby reefs and potential shutdowns for water quality exceedances.

3. Replace vegetation as soon as possible along both stream banks and shorelines. We encourage the use of hydroseeding, fiber mats, or other suitable material as interim cover for exposed soil, even if the soil will be exposed for a relatively short time period.
4. The Ajayan River has some known aquatic invasive species. Please ensure that all equipment used in the water is cleaned prior to moving it to another project site to avoid the spread of invasive species.
5. Should the BMPs not be properly implemented or fail to protect EFH, FHWA should develop a compensatory mitigation plan to offset loss of EFH associated with this project.

Please be advised that regulations (Section 305(b)(4)(B) of the MSA) to implement the EFH provisions of the MSA require that Federal action agencies provide a written response to this letter within 30 days of its receipt and at least 10 days prior to final approval of the action. A preliminary response is acceptable if final action cannot be completed within 30 days. The final response must include a description of measures to be required to avoid, mitigate, or offset the adverse impacts of the activity. If the response is inconsistent with our EFH Conservation Recommendations, an explanation of the reason for not implementing the recommendations must be provided.

This federally funded project is also subject to consultation requirements under the FWCA. Based on our site visit and review of the project plans provided, NMFS does not consider that further FWCA related investigation to determine impact to marine fish and wildlife resources is necessary for this project. This does not remove your responsibilities to consult with the US Fish and Wildlife Service and Guam Department of Agriculture on this project.

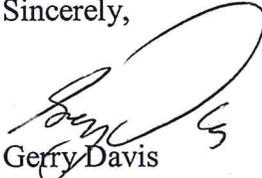
### **Conclusion**

In conclusion, NMFS greatly appreciates the FHWA's efforts to effectively coordinate with us early on the proposed Ajayan Bridge project, and the efforts taken to minimize adverse effect to EFH, particularly coral reef and seagrass resources in the project area. We determine that adverse affect to EFH will occur without minimization measures as described in the Conservation

Recommendations listed above. However, with careful project implementation and the project should have minimal long term impacts on EFH in the area.

We greatly appreciate the opportunity to review and comment on this project. Should you have any questions, comments, or require additional technical assistance, please contact Valerie Brown in our Guam Field Office [valerie.brown@noaa.gov](mailto:valerie.brown@noaa.gov) or 671-646-1904.

Sincerely,



Gerry Davis  
Assistant Regional Administrator  
Habitat Conservation Division

cc by e-mail:

- Ryan Winn, US ACOE, Honolulu District
- Christine Camacho Fejeran, GCMP, BSP
- Celestino Aguon, DAWR, DoAg
- Ray Calvo, Guam EPA



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**Hawaii Federal-Aid Division**

September 1, 2015

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In Reply Refer To:  
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Gerry Davis  
Assistant Regional Administrator – Habitat Conservation  
National Marine Fisheries Service  
Pacific Island Regional Office  
NOAA Inouye Regional Center  
1845 Wasp Blvd., Building 176  
Honolulu, HI 9818

Subject: Route 4 Ajayan Bridge Replacement, Project No. GQ-ER-0004(114)  
Essential Fish Habitat Consultation – Conservation Recommendations

Dear Mr. Davis:

Thank you for your letter dated May 13, 2015 regarding the subject project. We agree to include with some clarifications, the Conservation Recommendations, included in your letter, into the Ajayan Bridge Project to avoid and minimize impacts to coral reef resources and EFH. The Conservation Recommendations we plan to implement are as follows:

1. Ensure strict adherence to the BMPs listed in our consultation letter dated July 29, 2014. Regular site inspections for compliance with BMPs will be conducted by the Guam Department of Public Works (DPW) and/or their consultants;
2. Utilize adaptive management strategy for managing construction and operation impacts related to sediments and water quality. Specifically, we will be employing real time turbidity monitoring in addition to visual assessments of turbidity to ensure timely interaction to prevent sediment impacts to sensitive habitats. Per Guam Water Quality Standards the turbidity should not increase over 1 NTU over the reference site. We plan on having one sensor upstream, one sensor in the containment area, and two sensors downstream. The water is shallow in this area, so we will attempt to place it at least 1 meter below the surface. As this will be the first time that real time turbidity monitoring will be utilized on a DPW project, we will invite National Marine Fisheries Services staff to visit the site during the initial implementation of the monitoring. We will also invite NMFS staff to join DPW for a site visit that will occur every other week for the first three months of monitoring and thereafter monthly for the remainder of the necessary monitoring time. Should there be issues during the real time turbidity monitoring we will notify your office of our revised plan for monitoring turbidity;
3. Replace vegetation as soon as possible along both stream banks and shorelines. Areas which are disturbed and anticipated to be without vegetation for longer than three weeks will be

covered with hydroseeding, fiber mats, or other suitable material as interim cover for the exposed soil.

4. Equipment in the water will be cleaned prior to moving it to another project site to avoid the spread of invasive species.
5. If the BMPs are not properly implemented or fail to protect EFH, the Guam DPW will develop a compensatory mitigation plan to offset loss of EFH associated with the project.

With our commitment to the above Conservation Recommendations, we consider consultation under EFH to be completed. If you have any questions or comments, please feel free to contact me at (808)542-2311 or via email at [richelle.takara@dot.gov](mailto:richelle.takara@dot.gov).

Sincerely yours,



Richelle M. Takara, P.E.  
Transportation Engineer

cc: Joaquin Blaz, Guam DPW  
Michael Lanning, PTG  
Jeff Wilson, PB  
Sagrado Bilong, DPW

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